STEEL

PRODUCTION • PROCESSING • DISTRIBUTION • USE

For forty-eight years—IRON TRADE REVIEW

SEP 1 2 1932

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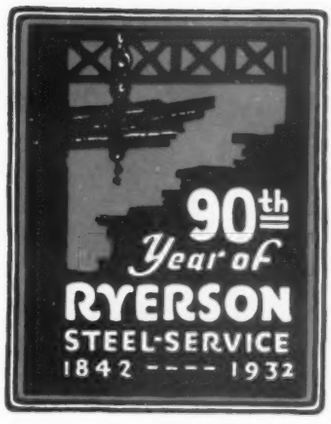

ANNIVERSARY

In 1842 Joseph T. Ryerson pioneered in the establishment of the first Ryerson Iron Store. ¶ Today a National Organization with plants in ten cities celebrates the event. ¶ New steel products, new equipment, new plants have been added. ¶ But the spirit of personal service continues as the guiding principle of the business.

Edward Ryerson

President

STEEL BARS SHAPES PLATES SHEETS RIVETS BOLTS
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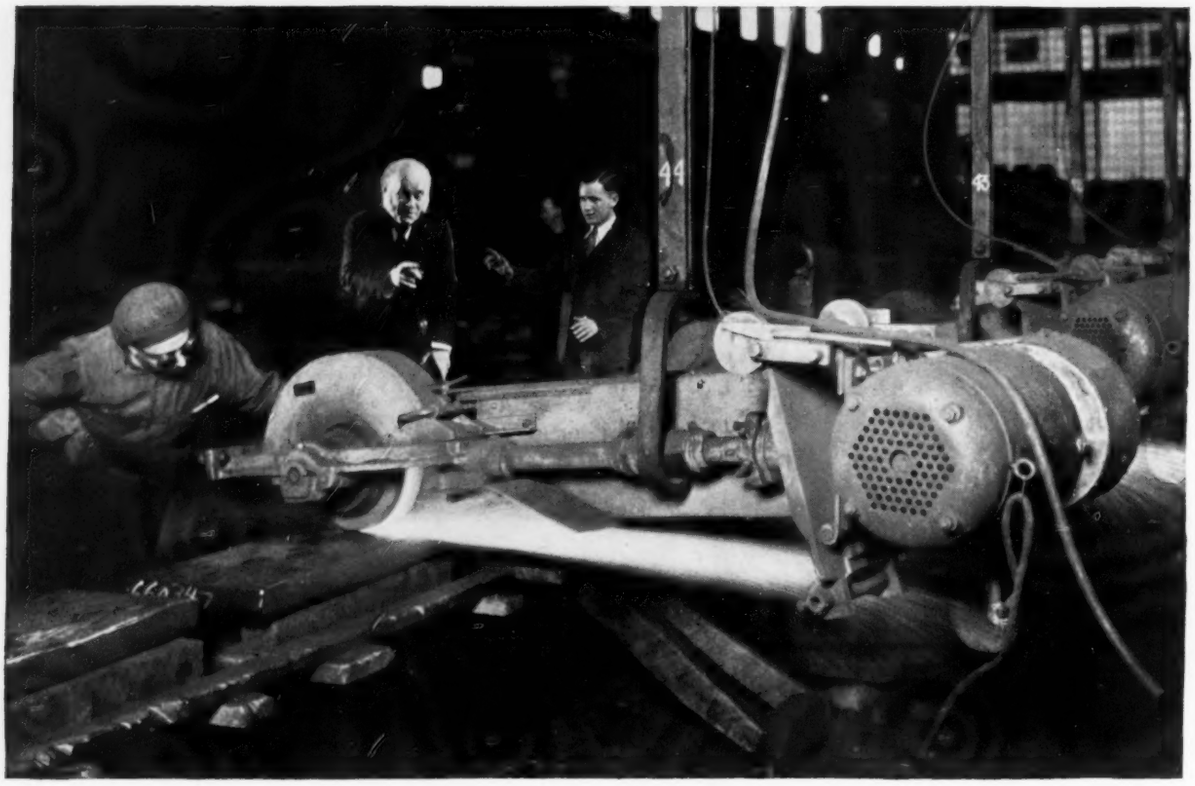
JOSEPH T. RYERSON & SON, INC.

PLANTS AT CHICAGO MILWAUKEE ST. LOUIS CINCINNATI DETROIT
CLEVELAND BUFFALO BOSTON PHILADELPHIA JERSEY CITY

POP AND LAD DISCUSS
MOTORS FOR GRINDERS



"I see that The Republic Steel Corporation have replaced the ordinary open type motors with Lincoln stainless steel motors on these billet grinders.

"There must be good reasons why they chose *'Linc-Welds.'*

"Of course, I know the *'Linc-Welds'* will outlive the others, because no dirt or dust can get inside their stainless steel enclosures to attack the windings."

"Righto . . . and more important is that extra horsepower that the *'Linc-Welds'* pack.

"On these grinders, sometimes they're overloaded 100%, yet it doesn't faze the *'Linc-Welds'* . . . they've got that extra horsepower always available, whatever the job.

"And *'Linc-Welds'* are money savers, too, since motors are priced on their rated horsepower and not on their overload capacity.

"In these times can you afford to pass up that extra dividend of additional horsepower paid on every dollar invested in *'Linc-Weld'* motors?"

LINCOLN

THE LINCOLN ELECTRIC COMPANY, CLEVELAND, OHIO

Manufacturers of *"Linc-Weld"* Motors and *"Stable-Arc"* Welders

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Weed out the wasteful tools

PROFITS stop when machines are stopped to replace worn or dull cutting tools. Weed out the tools that can't stand up under long schedules.

MORSE drills, reamers, taps and dies will keep machines going at full speed — keep production on a speedy basis — keep "down time" from eating up profits.

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DRILLS REAMERS CUTTERS TAPS AND DIES SCREW PLATES ARBORS

CHUCKS COUNTERBORES MANDRELS TAPER PINS SOCKETS SLEEVES

Volume 91 Number 11

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

LABOR day past, the iron and steel industry is through the eye of the needle and poised for an expansion of demand and production that will realize the high hopes for a fall upturn. Never has mail been opened with such avidity as in the past week; salesmen's reports have achieved the popularity of best sellers. By common consent, not too much was to be expected of the first ten days of September, but the industry is only human in its anxiety for the first satisfying indications of improvement.

Market News Predominantly Favorable

Actually, steel production in the week ended Sept. 10 pushed up two points to 15-16 per cent despite the holiday (p. 43). Better inquiry and slightly larger bookings were reported in practically all districts. Prices tend toward firmness . . . . For railroad repair work a $300,000,000 fund is being made available (p. 47), and reports persist that a 40,000-ton rail order approaches. . . . To placate the railroads, some steel producers in the East are abandoning (p. 14) practically all shipments by truck.

In Europe, Too, the Outlook Clears

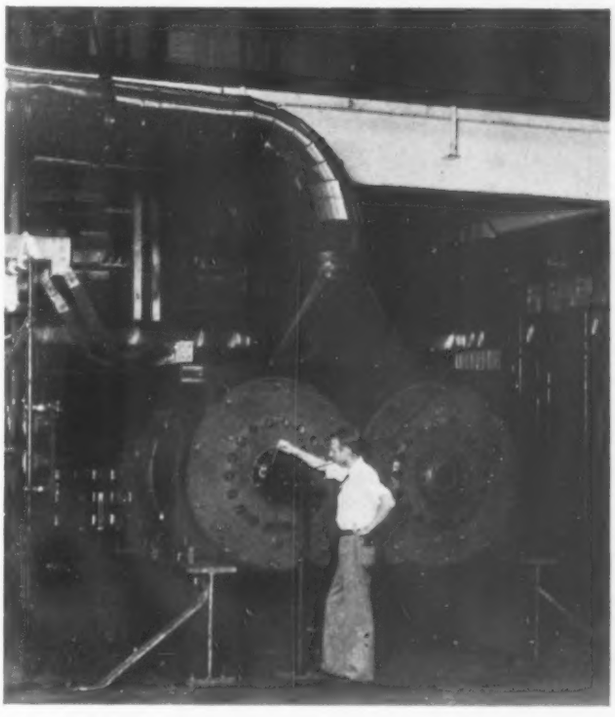
From Europe, where the first impulse toward world recovery originated, the market news also is more highly colored (p.61). London reports brisker trade in the Northeast, especially in pig iron; the movement of steel from Middlesbrough in August topped any month this year. On the Continent, buying for export has broadened, prices are rising, and German producers, unable to compete at recent low prices, again are factors in the market.

Washington Scanning European Steel Costs

But Europe will not be permitted to make progress at the expense of American mills, if Washington can prevent it (p. 13). First reports on European costs, prompted by the American Iron and Steel institute proposal to increase duties 50 per cent, have been received. Domestic costs on cast iron pipe also are being assembled, with the same objective . . . . Detroit, however, fears no invasion of foreign steel (p. 17), as automotive specifications are too exacting.

Construction, Not Constriction, Is Ahead

Of all major outlets for steel, building has been loosely appraised as the least promising, yet a survey (p. 11) supports expectations for an encouraging comeback. Not soon will hotel, office building, apartment and similar speculative projects elicit financing, but public work promises to provide three substantial years. Slum eradication is a large potential market winning increased public support; the market for steel houses alone is estimated at 3,500,000



More horsepower per pound of weight than any other single phase commutator motor, is claimed by Westinghouse for motors it is building for the Pennsylvania railroad electrification

tons annually. Induced obsolescence of buildings may prove a stimulant.

Bridging Frisco Bay Is Fabricators' Sport

Typical of the public work likely to tide the fabricating industry over until private building revives is the Golden Gate bridge at San Francisco, now believed financed (p. 61). Requiring 81,800 tons of structurals and 28,000 tons of cable, it is the largest structural job of the year—unless the San Francisco-Oakland bridge commands a Reconstruction Finance Corp. loan for its 139,516 tons . . . . Structural awards last week, at 12,082 tons, slipped slightly under the 1932 weekly average (p. 48), but enough public work is in the immediate future to make up this deficiency.

No Flashings on Drop Forge Industry Program

One industry that will shortly know whither it is heading, and why, is the drop forge (p. 32). At its annual meeting in Buffalo, Oct. 4-5, the American Drop Forging institute will consider the department of commerce survey of its capacity, sales and potential markets . . . . The automobile industry is certain that it is headed up—a September output approximating that of August to be followed by an October rise as new models get under way (p. 17). Partsmakers are breathing easier as General Motors apparently decides not to become self-contained.

Offers Aristocrat in Plain Carbon Steel

An Ohio foundry, progressively attempting to broaden its market, has developed a plain carbon steel of unusual quality for use in castings which must meet the service of gases and liquids at high pressure and stand extremes of heat and cold (p. 28). This steel, a super refined electric melted product falling within the soft range of 0.22 to 0.25 carbon, shows a tensile strength of 74,000 pounds, a yield point of 46,000 pounds, a reduction in area of 52 per cent and an elongation of 34 per cent in 2 inches.

Meeting Competition by Embracing It

Meeting competition as he finds it, an important manufacturer of rivets, of 40 years' standing, is bringing out a line of welding rods, enabling his sales force to present a complete metal-joining service (p. 34) . . . . For rebuilding coal cars suffering some damage from a car dumper, a public utility resorted to arc welding (p. 23), being able to restore cars for $700 to $900 and saving 40 per cent . . . . At many steelworks, welded steel construction is more widely used in new installations and maintenance (p. 35), with resultant marked economy.

The VOICE of INDUSTRY

Communications appearing here do not necessarily reflect the opinion of STEEL *or of its editors.*

To the Editor:

We recently received a notice from one of the oldest and wealthiest American manufacturers of machinists' tools, that it has made a 10 per cent reduction on price on a certain prominent line.

We invoiced our stock and sent them a copy and asked them to send us a credit memorandum for the rebate and for the first time in almost 50 years of dealing with them, they refused, although they have done this for us in the past.

This makes our stock less valuable, and it forces the distributor who has allowed his stock to run down during the slackness in business to stock up at the new price.

Furthermore, we see no use in lowering prices at a time when there is so little demand, as it only increases the hesitation on the part of the buyers to place orders for materials he actually needs. He feels that if he only waits long enough he will save some money.

A buyer for one of our largest manufacturing concerns told me a few days ago that he has a stack of requisitions on his desk six inches high, waiting for the word from headquarters to "go," and he also said that if a man wants a piece of belting now, he is told to "go and take a piece off of an idle machine."

If he wants a repair part, he is told the same thing and when that concern gets back into its "stride," there will be merry times to contend with.

PRESIDENT,
Mill Supply Company

Ohio

To the Editor:

In connection with the article that was published in STEEL "What Improvement on Farms Will Mean to Industry", I spent last week on a farm down in southeastern Ohio and took the article with me. When I handed it to my friend to read he glanced at it and said "You can't tell me anything about that; if you show me how to make some money on this farm, I'll buy a lot of machinery from you because I need it badly."

PRESIDENT,
Farm Equipment Company

Illinois

To the Editor:

The article in the Aug. 8 issue of STEEL, subject "Loans Do Not Alter Status" is interesting. It is our opinion whether or not the government or the people of the United States are aware of the fact, the loans made to the railroads are installment payments in purchase of these railroads and the forerunners of federal ownership. It cannot be otherwise and there can be no logical objection to the purchase and operation of the railroads' properties by the federal government.

The federal government, with the approval of the people, has spent millions of dollars during the past number of years developing water transportation; also millions more in the construction of highways. All of this work results in creating direct competition with the railroads. The federal government will spend many millions more in the development of the St. Lawrence ocean-to-lakes water route. Also there is again a revival of interest in lake-to-Ohio river canal route which will require still more millions for construction and maintenance.

All of this means added subsidized competition to the railroads. Therefore, is it illogical to imagine federal ownership of the railroads?

Fostoria, O. LUCIAN E. KINN.

Heavy Public Construction Sustains Building Steel

STATE and federal governments have had an opportunity to try out on a vast scale the plan of aiding business in a crisis by increasing public construction. The universal desire to minimize unemployment, and the prolongation of the depression provided the incentive and time necessary to mobilize public resources and apply them effectively.

Not since the World war has the federal government made such large expenditures for construction as in the past fiscal year, and it is doubtful if the states, as a group, ever before spent as much money for improvements in a similar period. The federal cost for such purposes in the year ending June 30, 1919, representing largely war obligations, was $715,300,000. This included $377,700,000 for floating equipment and $241,000,000 for buildings.

Approaches War-Time High

In the year ended June 30, 1932, the government's construction cost was $636,772,000, not including naval ships or aircraft. Thus a sum approaching that of a war-time emergency was poured out to fight the depression. Business pulled out of the rut of 1921 before the government found it necessary or expedient to help. Construction for the 12 months covering the worst portion of that depression barely amounted to $275,000,000.

The national government's outlay in the fiscal year 1929 was practically $300,000,000. From that year forward, however, while private work contracted, federal construction expanded. Expenditures so far during this depression probably have been double the amount that otherwise would have been authorized. It is apparent from contract awards that state sums have been increased proportionately.

STEEL'S weekly compilations of structural steel awards of 100 tons or more show for the nine months this year a total of 570,170 tons. Federal jobs, mainly postoffices and buildings in Washington, account for approximately 190,000 tons. State, county and municipal structures, chiefly state highway bridges, have taken 227,190 tons. These two groups collectively have absorbed 73 per cent of the structural shapes so far this year. Federal aid for state highway construction stimulated demand for bridges.

Next in importance have been the projects undertaken by public utilities. Subtract all these from the total and there is scarcely a shadow of industrial or commercial work remaining. The records indicate that but for the public support, construction enterprise in this country this year would have been nearly prostrate.

In 1931 and 1930 payments for United States government projects in 37 states were nearly equal to those for private awards. In several years just prior to the depression they were approximately one-third.

Plan Half Billion in 1933

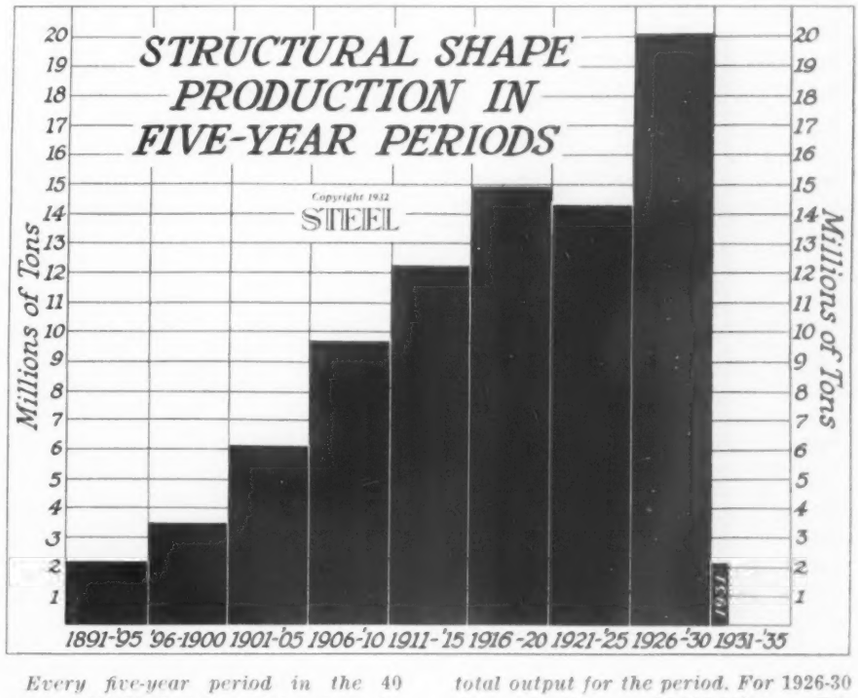
For the current fiscal year the federal program calls for $475,600,000. This is independent of $322,000,000 contemplated by the emergency construction act, for loans through the Reconstruction Finance Corp., a large proportion of which will go into construction, including buildings. For the next fiscal year the plan calls for $551,200,000 direct government construction expenditures; and for the succeeding year, $498,800,000.

Three years of public construction of unparalleled peace-time magnitude lie just ahead; to be formed up finally as economic conditions develop. Considerable attention is being given to self-liquidating projects. The American Institute of Steel Construction has just submitted a list of such projects requiring 1,218,250 tons of steel, at an estimated cost of $1,250,000,000 to be financed through the Reconstruction Finance Corp.

Deflation Is Appalling

The "deflation" in building operations, despite all that state and federal governments have been able to do, is graphically represented in building contracts in 37 states. Their total value for the two years—1931 and 1932—is only 75 per cent of the average for one year in the preceding six. Floor space in these two years, with the remainder of 1932 estimated, is only 66 per cent of the preceding yearly average. These figures include all types of buildings.

A reliable gage of building operations in terms of steel is STEEL'S annual compilations of tonnages taken by the principal steel-consuming groups. These show the 1931 tonnage was approximately half that of 1929. The influence of public work also is apparent in this record, as automotive and railroad demands were only about one-third those of 1929. Building construction in 1931 took more steel than any other group,



Every five-year period in the 40 years, 1891-1930, has registered an increase in structural shape production, except that 1921-25, with the losses incurred in the depression of 1921, fell 4 per cent short of the preceding five, which included war construction. Each perpendicular column represents total output for the period. For 1926-30 the production was 20,000,000 tons. The new five-year span has started with 2,000,000 tons in 1931, and a lesser tonnage for 1932. On the basis of analogy alone there must be a substantial increase for normal requirements in the remaining three years of this period

and largely because of public work it seems probable at this time it will lead again this year. In the ten years, 1922-1931, building steel requirements were second only to that of the railroads.

If the experience in that decade is an indicator building construction normally requires 6,300,000 tons of steel, approximately 15 per cent of the country's output. In 1929 the demand was up to 8,295,000 tons; in 1930, down 13 per cent to 7,244,000; and in 1931, to 4,358,000 tons. These are the figures obtained by relating actual finished steel shipments to total steel production, loss incurred in conversion being credited to each group proportionately.

Will this demand come back? What is there to bring it back? Pertaining to the first question, it is significant that in every five-year period in the 40 years from 1890 to 1930 structural steel production in this country made a substantial gain, carrying with it building steel requirements of all descriptions. There was one exception to this rule in that the five years, 1921-1925, with the depression in 1921 and slow recovery in 1922, was not quite up to that of the preceding five, which included the war and postwar construction eras. It fell short, however, by only 4 per cent, while in the succeeding five it more than made up for the deficiency, as will be noted in the accompanying graph.

Increases Are Indicated

For the latter five years consumption amounted to 20,040,744 tons. In 1931, the beginning of another five-year span, the output was only 2,062,858 tons; and this year, it is less. This indicates substantial increases in production over the remainder of this period, though it probably will be less than in the preceding five years. It need not return to that level to yield satisfactory operations for the mills and fabricators, and to afford work to millions now unemployed.

Another building "boom" is not immediately in view, but every successive step in business recovery will foster building steel demands. These have not yet lagged behind the general procession, and they are not likely to do so in the future.

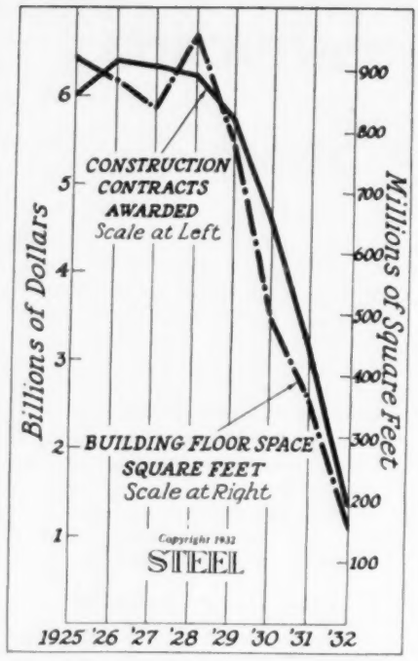
The factors opposing a speedy return of private building enterprise, briefly, are: Lack of credit, and inability or unwillingness of prospects to borrow, even for meritorious enterprise; surplus of factory and office space, reducing rentals and inducing prospects to rent rather than to build; the surplus of speculative types of buildings; high taxes; and, in many localities, building wage rates that still need adjusting.

Even the largest users of commercial floor space have economized; many of the smaller have gone out of business, and so it has been with many who owned or rented factory space. The necessity for constriction, rather than construction, has extended into practically every nook, including the humblest dwellings, now sheltering not only their former occupants, but in numerous instances several families. While space has been ample, circumstances have required cramping, but these conditions are not of the kind to be tolerated indefinitely. They are at variance with modern ideas and requirements, and only await the first favorable opportunities to be thrown off.

It is in this connection that the combined efforts of federal, state and municipal governments to eliminate slum areas may prove highly beneficial. There are, in addition however, many congested residential areas not of the slum type, whose problems can only be met in due time by additional building. In this field the prospects for steel-frame dwellings, such as are now being developed are considered especially bright. The Institute of Steel Construction recently estimated a market for at least 3,500,000 tons of steel annually in this type of house.

The New York metropolitan area has been the most important building steel consuming district in this country. No doubt exists there that speculative buildings of the large apartment house and skyscraper type are out of the question for some time. Many of the speculative builders of the large apartments, taking 1000 to 3000 tons of steel, have failed. Of this type of structure, New York, or more specifically, Manhattan, has an over-supply. Most of them have never been rented to

(*Please turn to Page* 34)



Figures represent construction contracts awarded and new floor space in 37 states, according to F. W. Dodge Corp., with the remainder of 1932 *estimated. The value of all contracts for* 1931 *and* 1932 *combined is only* 75 *per cent of the single year average for the preceding six years. Floor space for the two years is only* 66 *per cent of the preceding annual average*

More Steel Used Per Foot of Floor Space

	Steel Consumption for Buildings (Gross Tons)	New Floor Space, 27 states (000 omitted)	Steel, Per Sq. Ft. Floor Space (Pounds)
1922	4,211,826	570,076	16.5
1923	6,080,882	588,014	23.1
1924	5,477,372	597,541	20.5
1925	6,927,052	759,728	20.4
1926	6,326,483	737,424	19.2
1927	6,690,849	721,766	20.7
1928	7,845,024	832,916	21.0
1929	8,295,721	672,648	27.6
1930	7,244,508	424,424	38.2
1931	4,358,844	309,981	31.4

Steel consumption figures represent totals compiled from STEEL's official annual reports. New floor space, F. W. Dodge Corp. reports. While floor space for 27 states is not all-inclusive, the comparisons indicate an increasing amount of steel per square foot. Similar comparisons for 37 states since 1925 also show this increase.

New Pennsylvania Sales Tax Is Being Absorbed

Philadelphia—Some leading steel companies have not yet adopted a definite policy with regard to the new 1 per cent state sales tax on intrastate transactions which do not involve resale or reconversion material. The legal departments of these companies are still in process of clarifying the complications involved.

In the main, the mills will not be greatly affected, it is believed; in fact, not as much as the jobbers, for whom a greater percentage of their business is comprised of material for maintenance and repair work, on which taxes apply. Such mills as have taken a definite position are, like the majority of leading jobbers, planning to absorb the tax, due to competition by producers and sellers outside the state not affected by the tax.

Discuss Credits for Scrap

Benjamin Schwartz, director-general of the Institute of Scrap Iron and Steel Inc., New York, has been in conference with Eugene Meyer,

governor of the Federal Reserve board, and John G. Peterson, chief executive of the Commodities Finance Corp., on the matter of easing bank credit for the scrap industry. A suggestion that a credit union be set up for financing commodity purchases in the scrap industry was made.

See Signs of Improvement In Canadian Steel Market

Toronto, Ont.—With the passing of summer there are encouraging indications of an improvement in the Canadian iron and steel industry. Officials of some companies are now prepared to predict some betterment before the end of the year, and a few minor contracts have been awarded which tend to confirm to some extent these predictions.

It is generally conceded that inventories are low and any sudden improvement in new business would find many producers, jobbers and manufacturers out of supplies.

Gas and oil well drilling operations have recently shown increased activity, some companies have intimated that drilling will be resumed at an early date.

The Page-Hersey Tubes Co. is again operating both the seamless and welded tubes departments.

Accept New Pipe Standard

Washington—The revised simplified practice recommendation on wrought iron and wrought steel pipe has been sufficiently accepted to warrant making Oct. 1, 1932, its effective date, according to the bureau of standards.

The revision eliminates from the original recommendation the 3½ inch nominal inside diameter pipe from table 3—"double extra-strong" pipe. The recommendation applies only to new installations and production of pipe.

Hoover Dam Cableway Up

Denver—Bids close Sept. 26 with the bureau of reclamation for one electrically-operated cableway, 150 tons capacity, with a span of approximately 1200 feet at Hoover Dam. Hoisting equipment will be operated and controlled by direct-current apparatus.

Williamsport Awarded Rope

Williamsport Wire Rope Co. has been awarded 950 feet ⅞-inch wire rope for the United States engineer, Huntington, W. Va., 2100 feet ¾-inch; 150 feet ¾-inch, and 200 feet ½-inch, bidding a total of $409.97, delivered.

Receive European Steel Costs; Business News of Washington

WASHINGTON — Several reports on the cost of producing steel in European countries have been received by the customs bureau of the treasury department in connection with its investigation of charges of dumping.

These charges were lodged by the American Iron and Steel institute and other organizations. If a comparison of foreign production costs and quotations on foreign steel in the United States disclose a movement to this country at a loss, a hearing will be held. This, however, is several months distant in any event.

C. H. Starnd and H. R. Stephan, metal experts of the tariff commission, and four accountants are now in New Jersey making a survey of the cost of producing cast iron pipe. This staff will next go to pipe foundries in Alabama. The European investigation, which is to be largely confined to France, has not yet been begun.

It is not expected that the remainder of the field work in this country will consume much more than a month. The commission has not yet taken formal action on the request of the institute for similar action on practically all steel products. In the case of these steel products, as with cast iron pipe, duties can be increased up to 50 per cent, under flexible provisions of the tariff law, to compensate for lower costs abroad.

□ □ □

Interstate commerce commission reports net losses of Class 1 railroads in the first half of 1932 was $127,000,000, compared with net profit of $31,143,329 in the first half of 1931.

□ □ □

Japanese imports of tin plate declined from 80,364 tons in 1929 to 40,299 tons in 1931 due largely to an increase in domestic production, a report to the department of commerce states.

□ □ □

The simplified practice recommendation covering grinding wheels and coated abrasive products has been sufficiently accepted to make it effective, the bureau of standards states.

□ □ □

Treasury department has allowed the Lava Crucible Co., Pittsburgh, a drawback on crucibles manufactured from imported graphite and clay. A drawback involving the use of foreign tungsten and molybdenum was issued to the Eizler Electric Corp., Newark, N. J.

WINTER WILL SOON BE HERE: This pile of by-product coke is 57 feet high, made possible by taking a locomotive crane, mounting a 10-ton hopper on it, slinging a conveyor 87 feet long and 24 inches wide from the boom. A 5-horsepower motor operates both the main conveyor belt and the 24-inch feeder. This storage conveying unit, built by the Link-Belt Co., Philadelphia, handled 60 tons an hour in the initial test

Ingot Production Drops, but Rate of Decline Is Checked

CONTINUING the decline unbroken since February, steel ingots in August fell below July in the rate of operation and average daily production, although actual tonnage was slightly higher, due to two more days of operation than in July, according to the compilation of the American Iron and Steel institute.

The rate of operation in August was 14.26 per cent, compared with 14.66 per cent in July, the daily output in August was 30,830 tons, compared with 31,701 tons in July. This constitutes a further deepening of the historical downward sweep of the ingot curve.

For eight months of 1932 the average operating rate is 20.44 per cent of capacity, compared with 43.58 per cent for the same period of 1931. The average daily rate for eight months is 44,196 tons, compared with 92,581 tons in 1931. Total calculated output so far in 1932 is 9,192,704 tons, compared with 19,164,269 tons for eight months in 1931.

According to the record, February is the only month this year showing an increase in daily rate, but at the same time the total production made a decline, owing to the fewer days of activity.

Coal Stored for 45 Days

As of Aug. 1, bituminous coal stocks of by-product coke plants in the United States averaged 53 days, electric utilities 67, coal gas plants 57, railroads 27, and other industries 50, according to the National Association of Purchasing Agents, New York.

The average of all bituminous industrial coal stocks in the United States on Aug. 1 was a 45-day supply. There was a 102-day supply in Canada. Total industrial stocks of bituminous coal on Aug. 1 were 25,600,000 tons, a reduction of 430,000 tons from July 1.

Now Ship Steel by Rail

AT LEAST two eastern steelmakers have abandoned the practice of making long-distance deliveries of their products by truck and a third contemplates such action, in deference to the railroads. Where consumers themselves take delivery at the mill by truck, the matter is considered out of the jurisdiction of producers.

Price Indexes Decline

Washington—Index number of wholesale prices for the week ended Aug. 27 stands at 65.2 compared with 65.4 for the week ended Aug. 20, states the bureau of labor statistics of the department of labor. The wholesale price index on metals and metal products in the week ended Aug. 27 was 80, against 80.1 the week preceding. In this compilation, 1926 equals 100.

Willing To Cover for 1933

Of the $4,500,000 orders for supplies for the remainder of the year placed recently by Remington-Rand Inc., New York, 15 per cent is for iron and steel products. Where possible, at present prices, contracts covering the company's requirements for all of 1933 will be placed, on the basis of an increase of 25 per cent over requirements for 1932.

Machinery Output Halved

Washington—Output of dredging, excavating and road building machinery in 1931 was valued at $47,508,766, compared with $91,438,554 in 1929, according to the 1931 census of manufactures. The total value of dredging machinery made in 1931 was $3,430,247, excavating machinery $22,764,771, and road building machinery $21,313,748.

Bearing Value $20,970,581

Total value of ball bearings manufactured for sale, and exclusive of bearings made by manufacturers for their own products, in 1931, was $20,970,581, according to the biennial census of manufactures. The number of bearings with tapered, straight and flexible rollers was 45,752,594 valued at $19,959,071.

Bands Lead Phila. Imports

Philadelphia—Following imports were received at this port from Belgium during the week ending Sept. 3: 49 tons steel bands, 5 tons diamond plates, 19 tons steel bars, 20 tons window shapes, 23 tons structural shapes.

Steel Ingot Production—1931-32

95.33 Per Cent of Industry Reporting
Gross Tons

1931	Open-hearth	Bessemer	Monthly output companies reporting	Calculated monthly output all companies	No. of working days	Approximate daily output all companies	Per cent operation
Jan.	2,098,175	296,620	2,394,795	2,512,140	27	93,042	43.80
Feb.	2,131,079	296,974	2,428,053	2,547,027	24	106,126	49.96
Mar.	2,565,531	346,137	2,911,688	3,054,339	26	117,475	55.30
Apr.	2,321,043	316,668	2,637,711	2,766,959	26	106,421	50.09
May	2,130,805	301,639	2,432,444	2,551,633	26	98,140	46.20
June	1,782,007	246,365	2,028,372	2,127,762	26	81,837	38.52
July	1,574,379	225,030	1,799,409	1,887,580	26	72,599	34.17
Aug.	1,462,254	174,380	1,636,634	1,716,829	26	66,032	31.08
8 mos.	16,065,273	2,203,813	18,269,086	19,164,269	207	92,581	43.58
Sept.	1,274,072	199,151	1,473,223	1,545,411	26	59,439	27.98
Oct.	1,319,958	195,943	1,515,901	1,590,180	27	58,896	27.72
Nov.	1,276,856	240,441	1,517,297	1,591,644	25	63,666	29.97
Dec.	1,068,384	172,046	1,240,430	1,301,211	26	50,047	23.56
Total	21,004,543	3,011,394	24,015,937	25,192,715	311	81,006	38.13
1932							
Jan.	1,230,661	160,633	1,391,294	1,459,450	26	56,133	25.96
Feb.	1,232,568	157,067	1,389,635	1,457,710	25	58,308	26.96
Mar.	1,149,307	193,944	1,343,251	1,409,054	27	52,187	24.13
Apr.	1,036,227	144,197	1,180,424	1,238,250	26	47,625	22.02
May	950,785	103,593	1,054,378	1,106,030	26	42,540	19.67
June	755,123	100,249	855,372	897,275	26	34,511	15.96
July	652,650	102,872	755,522	792,533	25	31,701	14.66
Aug.	704,747	88,782	793,529	832,402	27	30,830	14.26
8 mos.	7,712,068	1,051,337	8,763,405	9,192,704	208	44,196	20.44

Figures exclude crucible and electric ingots. Operating percentages for 1931 on capacity of 66,069,570 gross tons as of Dec. 31, 1930; for 1932 on 67,473,630 tons as of Dec. 31, 1931.

Industrial Men in the Day's News

Frank E. Spencer, Vice President, Pittsburgh Crucible Steel Co.

HIS first association with the steel industry was with his father, at Scranton, Pa.

FOR 25 years he was with the Steel corporation, advancing to manager of sales at Detroit for Carnegie and Illinois.

IN 1928 he left the Lucey Mfg. Co. to go with Pittsburgh Crucible, now being in charge of sales.

FRANK E. SPENCER, who as noted in STEEL for Aug. 29 was elected vice president in charge of sales for the Pittsburgh Crucible Steel Co., Pittsburgh, has been identified with the steel industry for the past 36 years.

Mr. Spencer began his career in the industry in 1896 in association with his father in the Green Ridge Iron Works, Scranton, Pa., then a manufacturer of railroad spikes, bars and forgings.

Four years later he left to enter the order department of the American Steel Hoop Co., New York and the following year, in 1901, he became identified with the sales department of the same company in Philadelphia.

The United States Steel Corp. was formed shortly thereafter and Mr. Spencer remained in its employ. In 1905 he was transferred to Pittsburgh as assistant district manager of sales in the Pittsburgh district for the Carnegie Steel Co., Pittsburgh. For ten years, or until Feb. 1, 1915, he remained in Pittsburgh in that capacity, but on the latter date he was named manager of sales in the Detroit district for the Illinois Steel Co. and the Carnegie Steel Co.

In 1920 he left the employ of the Corporation to become identified with Independent Warehouses Inc., New York, a warehouse interest sponsored by the Guaranty Trust Co., New York.

Four years later Mr. Spencer was named president of the Lucey Mfg. Co., Chattanooga, Tenn., but in 1928 he became identified with the Pittsburgh Crucible Steel Co. as general sales manager.

He is a member of American Iron and Steel institute, a former member of the American Institute of Mining and Metallurgical Engineers, and a resident of Pittsburgh.

LOUIS E. UNDERWOOD, managing engineer, stationary motor engineering department, General Electric Co., Lynn, Mass., has been appointed manager of the Pittsfield, Mass., works of the company, succeeding E. A. Wagner, retired. Mr. Underwood, a graduate of the Sheffield Scientific school of Yale university, has been with General Electric since 1897.

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S. P. Hewitt, son of S. J. Hewitt, chief metallurgist of Edgar Allen & Co. Ltd., Sheffield, England, has been appointed general agent of Edgar Allen & Co. (Canada) Ltd. at 116 McGill street, Montreal, Que. He will be responsible for the entire Canadian business, including sales.

J. K. Schofield remains as secretary and treasurer of the company. G. E. Membery continues in charge of the Toronto, Ont., branch and will act as sales manager.

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Frank F. Beeby has become associated with the Cement Gun Co. Inc. at its Chicago office, 549 West Washington street.

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W. W. Brierly has resigned as president and general manager of the Millbury Steel Foundry Co., Millbury, Mass., to become associated with the Malleable Iron Fittings Co., Branford, Conn., as district manager, steel castings division, with headquarters at Worcester, Mass.

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Benjamin F. Lewis, vice president, St. Louis Gas & Coke Corp., has resigned effective about Oct. 1. He became identified with the company, which is a subsidiary of the Utilities Power & Light Corp., in March, 1930, when M. D. Curren, then president, resigned.

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George R. Roemer, formerly chief engineer for the Continental Steel Corp., Kokomo, Ind., and long identified with the sheet and strip industry, has established offices as industrial engineer at 47-49 West street, New York. Under an arrangement with J. I. Bernitz, New York, Mr. Roemer will sell the Ungerer sheet leveler, a German machine.

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H. H. Elmire, until recently in charge of the New York district office at Arlington, N. J., of the Key-

stone Driller Co., has been promoted to field engineer for this company with headquarters at Beaver Falls, Pa.

James Shearer, for a number of years associated with the Industrial Works, Bay City, Mich., and its successor, the Industrial Brownhoist Corp., as sales manager at Chicago, succeeds Mr. Elmire as district manager at Arlington.

August Tin Plate Output Low; Exports Also Down

New York—Production of tin plate in the United States during August was at the lowest level in a number of years, amounting to 75,000 tons, compared with 83,000 tons in the preceding month and 101,000 tons in August of last year. According to the American Bureau of Metal Statistics, the August tonnage required the use of 1200 tons of tin, against 1300 tons in July and 1600 tons in August, 1931.

Latest available statistics for Great Britain show that June production in that country was 56,200 tons compared with 60,400 tons in May and 49,000 tons in June, 1931. British production this year has been running consistently ahead of 1931 but slightly under that of 1930. German production fell to 12,233 tons in July from 14,108 in June and 14,530 in July, 1931.

Exports of tin plate from the United States in July were 2430 tons, compared with 2877 tons in the preceding month and 8790 a year ago. July imports were only 15 tons, against 43 in June.

Great Britain exported 37,740 tons in July, compared with 38,367 tons in June and 37,834 tons in July of last year. German exports jumped to 6164 tons in July from 3420 tons in the preceding month and 5312 tons a year ago.

The American Bureau also reported that babbitt metal production in this country took 500 tons of tin in July compared with 550 tons in June and 800 tons in July, 1931.

Furniture Exports Light

Exports of metal furniture in July included only $72 worth to Germany, where a new and higher tariff is expected to raise an almost insurmountable barrier. In July exports of sheet metal lockers and storage cabinets to all countries totaled $2284, sheet metal shelving and wall bins $4254, uninsulated sheet metal filing cabinets $13,781, insulated cabinets $10,928, safes $7339, bank and safety deposit equipment $3036, other office furniture $8576, metal beds and springs $25,294, and other metal furniture $4647.

Obituaries

FRED N. BAYLIES, 54, for many years identified with the railroad supply industry, died Sept. 2 in Hollywood, Calif. He formerly was vice president of the P. & M. Co., Chicago manufacturer of railroad supplies, and represented that company in New York for 15 years. He also was associated with Poor & Co., Chicago.

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B. W. Hopkins, 63, pioneer stove manufacturer of Portsmouth, O., died unexpectedly at Bellefontaine, O., Aug. 16.

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Gregory Bethke, 52, superintendent, Western Machine Co., Milwaukee, died Sept. 2 after an illness of several months.

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Dudley M. Gray, 44, manager of the Los Angeles office of the Art Metal Construction Co., Jamestown, N. Y., since last December and prior to that in the Jamestown office, was killed in an automobile accident near Barstow, Calif., Sept. 2.

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John Muzik, 56, tool builder and designer and in charge of all tool and die work for the Geuder, Paeschke & Frey Co., Milwaukee, died Aug. 29. A native of Austria, he spent several years as toolmaker in Vienna and Berlin, coming to the United States about 25 years ago. Tools built under his supervision advanced the use of sheet metal and expedited quantity production in the automobile, wash machine and business machine industries.

Here and There In Industry

NATIONAL ENGINEERING CO., 549 West Washington street, Chicago, has made contracts whereby its products, Simpson intensive sand mixers, bucket loaders and aerators, will be manufactured in Canada by the Dominion Engineering Works Ltd., Montreal, Que., for Canadian users. National-designed sand handling, sand preparing, mold handling and conveying equipment will be manufactured by the Dominion Bridge Co., and its affiliated companies for Canadian users.

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Birchfield Boiler Co., Tacoma, Wash., has appointed Consolidated Supply Co., Second and Stark streets, Portland, Oreg., its sales agent for Oregon.

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St. Louis Gas & Coke Corp., principal pig iron producer in the St. Louis district, has moved its sales offices from the Laclede Gas Light building, St. Louis, to the plant at Granite City, Ill., in charge of J. L. Reiber as general sales manager.

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Titusville Iron Works, Titusville, Pa., has been awarded the contract for a Scotch marine boiler for the United States dredge ALLEGHENY for federal engineers at Pittsburgh. Schoellhorn, Albrecht Co., St. Louis, and American Hoist & Derrick Co., Pittsburgh, are low on two engines for this dredge.

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E. L. Essley Machinery Co., Chicago, has occupied its new showroom and warehouse building at 825-845 Rees street. The new plant, away from the congested downtown district, combines office, display room and warehouse, served by sidetrack and 20-ton crane. The company is in its twenty-fifth year. E. L. Essley, president, has served the machine tool industry in Chicago more than 40 years.

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Lombard Iron Works & Supply Co., Augusta, Ga., will start shortly production of a complete new line of hydraulic machinery. This will include power pumps from 250 to 18,000 gallons capacity, plunger type; eight sizes of centrifugal pumps from 1 to 6 inches; automatic electric water systems for rural use; shallow and deep well pumps and cylinders for deep well pumps. Later a line of farm gasoline engines will be added. No plant extensions are planned for the immediate future, but the number of employes will be largely increased. The company has been in existence since 1869, building hydraulic equipment and mill supplies.

Continental's Loss Grows

Continental Steel Corp., Kokomo, Ind., reports for the first half year net loss, after taxes and charges, of $205,327, against a loss of $106,533 in the first half of 1931.

Adopt Joist Nomenclature

Washington—Every manufacturer who has accepted the simplified practice recommendation covering open-web steel joists will identify the simplified lines in all trade literature, the bureau of standards states.

Steel Erectors Take Cut

Structural steel erectors have accepted a daily rate of $9 for work on the New York prison at Attica, N. Y., a reduction of $2, thereby breaking a 2-month strike.

MIRRORS OF MOTORDOM

DETROIT

FORD having resumed Sept. 6 on the basis of about 2500 eights daily, 4 days a week, his probable contribution to September production will be approximately 40,000 units. In August, prior to the shutdown on the 12th, he made about 25,000 units.

This month, therefore, may have an edge of about 15,000 Fords on August. Chevrolet, on the other hand, being in a cleanup period, will almost offset this gain. With other General Motors units virtually down and Graham the only manufacturer to expand its schedule, September output should vary little from August.

The first official insight into August production comes from the National Automobile Chamber of Commerce, whose estimate for the United States and Canada is 89,855 units. Deducting about 7000 units for Canada and considering that the chamber's estimates usually exceed final figures of the department of commerce, a domestic total of about 75,000 units for August is indicated.

Graham Orders Up 67 Per Cent

Unquestionably, retail sales have been stimulated by the recent rise in the stock market and the general improvement in sentiment, but not sufficiently to warrant any revision of schedules, except by Graham. Prospects are being closed a little more rapidly and easily, but this business is moving dealers' stocks. And these are not large, so closely has production been budgeted.

Shipping orders by Graham for all of August were reported as being about 67 per cent in excess of the orders received in July. Chevrolet dealer sales in the first 20 days of August were 16 per cent ahead of July. For all Chrysler models, sales in the first half topped those of a year ago by 14 per cent, and August was maintaining this spread.

The forecast that a little more steel would move to Detroit in September than August still stands. The margin will not be much, but August undoubtedly was the turn. It may be almost the last week of the month before this is evident, but it is assured unless General Motors and Chrysler defer a start on new models now scheduled.

If only stocks for dealers' floors were taken into consideration, work on the new Plymouth and Dodge series is regarded as generating some steel requirements this month. General Motors will start assembling the new Buick and Chevrolet next month, for which material must be taken in shortly.

Discard Integration Idea

General Motors, incidentally, appears to be choosing more of a middle ground in its policy of withdrawing parts business from outside manufacturers in an attempt to fill up the idle capacity of its subsidiaries. The recent contract to Thompson Products for all valves except for Chevrolet indicates this.

Early in the year, when Buick-Olds-Pontiac were grouped, it looked as if the Corporation would tend to become self-contained, but one unit protested vigorously and demanded that at least one third of certain parts requirements be placed on the outside. The Ford situation makes the lot of the nonintegrated automobile manufacturers appear the happier.

One cogent reason for nonintegration is that the parts manufacturer holds the bag in times like these. Another is that inspection is likely to be more rigorous on material from outside manufacturers than on intraplant production, which is also an explanation why steel sellers in the Detroit area do not become apprehensive over the possibility of imports of foreign steel through the proposed St. Lawrence seaway.

Even now, with the new Welland canal open, receipts of foreign steel in Detroit for the automotive industry are practically nonexistent. With steel originating in plants not over 36 hours distant by freight and overnight by truck, the buyer can afford to be most exacting. A difference of as little as 5 points in carbon sends forging stock back to the mill.

A cargo of steel from England, Belgium or Germany would be a number of weeks in transit, if the analysis were off the difficulties of getting an adjustment would be magnified, and material to replace that rejected could not be procured speedily from the same source. As one seller puts it, the automobile industry could not deal as harshly with foreign steelmakers as it does with domestic ones.

American Austin, noted recently as resuming on light delivery cars at the rate of 25 weekly, made a shipment to lower Mississippi river points last week. The cars were driven from Butler, Pa., to Glassport, Pa., and then placed on river barges.

Up and Down Auto Rialto

Buick, expected to make the first showing of General Motors units for 1933, will have unusually wide doors in some models . . . . Olds engineers are revising considerable Buick manufacturing and assembly practice. . . . Packard has enjoyed a wider market for its twin six than was expected . . . . Autocar has expanded its schedule, supporting the belief that trucks are moving relatively better than passenger cars . . . . Olds was 35 years old on Aug. 21. . . . Clark Equipment Co. is manufacturing a new type of wheel for low pressure balloon tires, at its Buchanan, Mich., plant. . . . Some experimental automobile tops have been made from sheet copper, 0.0017-inch thick, to which fabric is held by adhesives. Such a top makes an ideal radio aerial, it is claimed.

EDITORIAL

Industry Cannot Afford To Ignore "Style" Factor

IN THE long period of development in this country when the metal industries were pressed to keep up with the demand for materials, the majority of articles of iron, steel or nonferrous metals were chosen and purchased for their qualities of utility. Strength, durability and other physical properties were considered almost to the exclusion of appearance.

Now, however, consumers are in the process of altering their conception of what is desired in metal products. Qualities of serviceability still are uppermost in their minds, and always will remain so, but in addition the factors of beauty, good taste, etc. will gradually receive more attention. Already artists, architects and others, whose professions bring them in close touch with the public's buying habits declare positively that industry is overlooking opportunities in its failure to consider the esthetic in its products.

Criticism in this direction has gained momentum during the past few years, largely because steel, aluminum and other materials have been going into markets where style and taste are important. As long as rolled steel, castings, forgings, etc., were used almost exclusively in industrial equipment, the question of appearance remained relatively unimportant. But now that these products appear in our homes, public buildings, automobiles, etc., beauty and harmony are quite essential.

Entrance of Metals into New Markets Makes Appearance More Important

Artists are likely to overstate their criticism of industrial products; they do not and cannot sense the difficulties involved in metallurgical and mechanical operations. Nevertheless, making due allowance for exaggeration, there still is much in the contentions of these critics which merits the attention of industry.

For instance, how many producers of iron and steel alloys grasped the true significance of the new architectural treatment of large buildings which is typified in the Chrysler and Empire State buildings? Of course metal had been used before for exterior trim, but in these structures, because of their size, the use of alloys for outside embellishment was a striking departure from conventional practice. To what extent are the producers and fabricators of these metals studying the architectural possibilities in this use of iron and steel? Are they prepared to offer improvements in the next large building using this material?

Consider the steel in office furniture; in railroad sleeping, dining and club cars; in refrigerators, radios; etc. Are those responsible for the appearance of these applications of steel willing to declare that there is no opportunity for improvement? Manufacturers have been able to turn out sheets and plates with an unbelievably fine finish. The lacquer, enamel and other coating experts have improved their products. Yet in spite of all that has been done, the final appearance of many products of steel lacks something of the charm that is inherent in certain other materials.

Architectural Applications Make Necessary Harmony in Design and Color

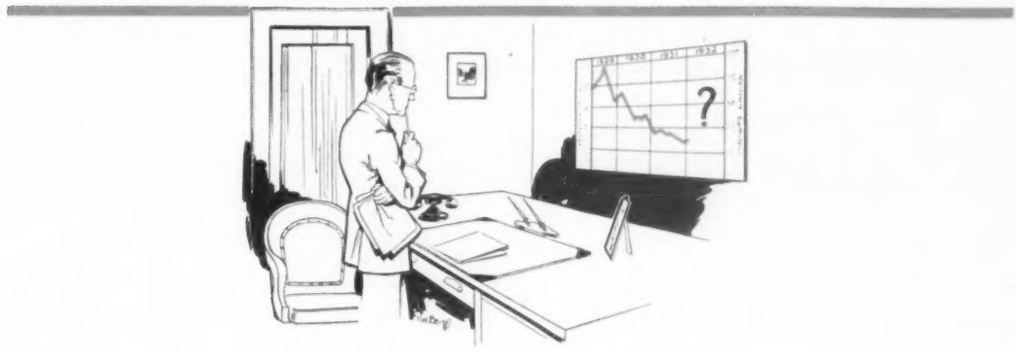
This problem will increase rather than diminish. The figures of steel consumption in the building industry when compared with the square footage of building show that the amount of steel per unit of building volume has increased sharply in the past decade. It will rise even more in the next few years. The task of adapting iron, steel and other metals to use for and in buildings will be made easier if producers in the early stages of exploring this market will heed the salient requirements of good taste and appearance.

Steel is an ideal material for gasoline filling station construction, yet it has only scratched the surface of this market. Here the appearance of the finished structure is important, yet steel affords as great, if not a greater variety of treatments as to finish, color, etc., as any other material. This is also true of steel in store fronts, in the spandrels and other exterior trim of office buildings, in passenger car interiors, in residence construction and in furniture.

Steel producers may well study developments in enamel, glass, plastics, wall boards, linoleum, fabrics, etc. In many cases where steel alone is not suitable, it may be used in combination with other materials.

When an ugly product of iron, steel or other metal is placed before the public, the result is widespread resentment against the use of the material. Industry should guard against this by giving adequate attention to the appearance or "style" factor.

THE BUSINESS TREND



Reversal of Business Trend Now Is in Progress

BUSINESS seems to be approaching a period when the ordinary barometers will reassume some of their former significance. For months the minor ups and downs of various yardsticks have attracted little interest because the fluctuations did not represent definite trends. Not until the indexes of commodity prices showed several consecutive gains did observers begin to look for trends in other indicators.

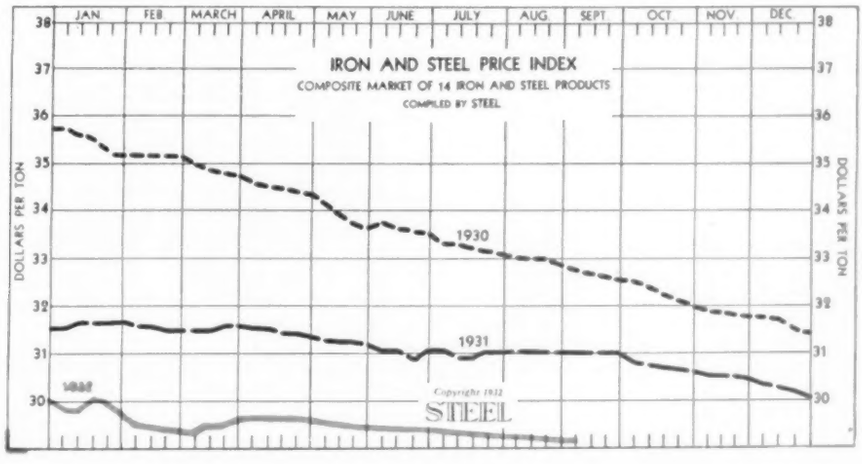
Now that Labor day has come and gone, the curves of business activity will be scanned more closely. Already the record of freight car loadings has begun to point upward. For three consecutive weeks moderate gains have been registered. Figures of the National Electric Light association for the week ended Sept. 3 show an increase in the output of electricity of 28,260,000 kilowatt-hours from the previous week. In electric output, as in car loadings, gains have been recorded in three consecutive weeks.

In the majority of cases, favorable trends in monthly barometers cannot be expected until the statistics for September are available. The first important monthly tabulation for August, namely pig iron production, reveals an expected further recession in daily average output and in the number of active stacks. Steel ingot output also was down in August. According to the estimate of the National Automobile Chamber of Commerce, production of motor cars in August in the United States and Canada totaled only 89,855 units, compared with 118,611 in July.

Turning Point In 1932 Is Month or More Behind That of 1921

If, as now seems probable, an upturn in industrial activity in September results in a somewhat general reversal in the trends of the principal barometers of production, then the rise from the summer low points in this depression will parallel in many respects the climb from the July valley in the 1921 depression. If this transpires, it will be confirmation of the observations made several times in this column during recent weeks that the present recovery seems to be timed about a month or six weeks behind that of 1921.

Eleven years ago the low point for the basic barometers of production was in July; today the evidence points to a low in August.

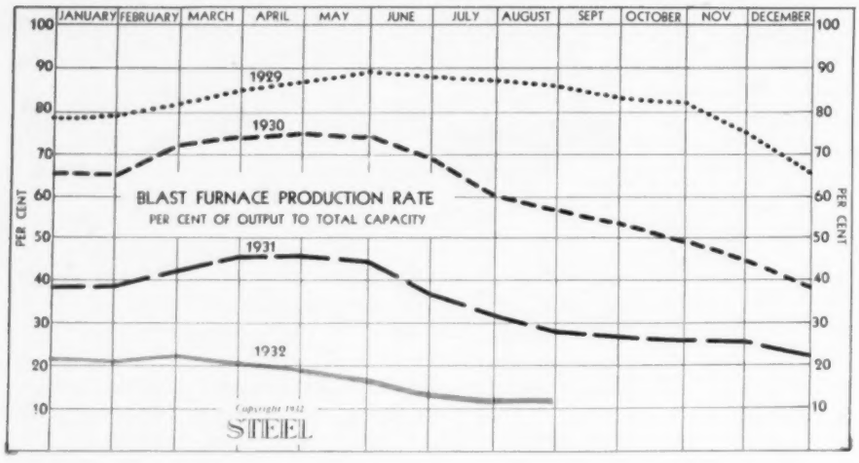


1932

Sept. 3	$29.32
Aug. 27	29.24
Aug. 20	29.26
Aug. 13	29.34
Aug. 6	29.46
July 30	29.46

1931

Sept. 2	$31.04
Aug. 26	31.04
Aug. 19	31.04
Aug. 12	31.06
Aug. 5	31.06
July 29	31.06



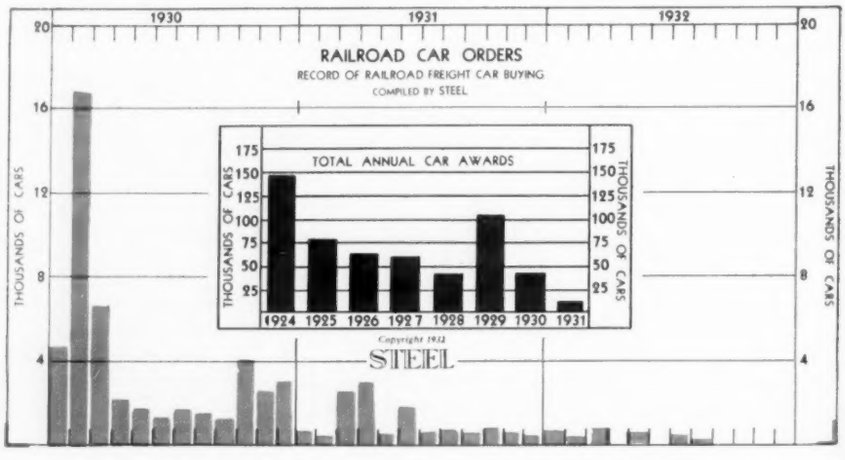
	1932	1931
Aug.	12.1	28.7
July	13.0	32.7
June	14.7	37.9
May	17.9	44.7
April	20.2	46.5

Blast Furnace Operation Down With a Loss of Three Active Stacks

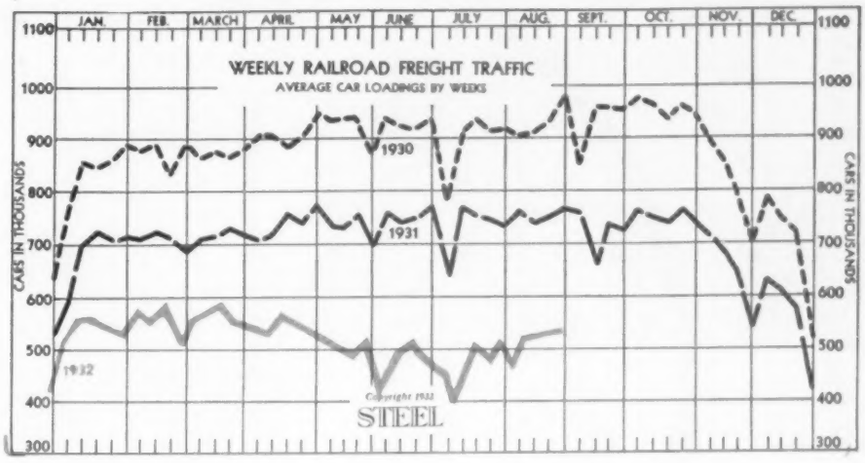
The continued falling off of pig iron output brought a further reduction in blast furnace activity during August. Relating production to capacity, the operating rate for the current month was 12.1 per cent compared to 13.0 per cent in July and 14.7 per cent in June. In August last year the operating rate stood at 28.7 per cent while for the same month two years ago it was 57.8 per cent. On the last day of August, 42 blast furnaces were in operation, or 3 less than the revised total of 45 active on July 31. This establishes a new low point for operations. During the month, 5 furnaces resumed work and 8 were blown out or banked.

August Car Awards Reflect Market Dullness

With the awarding of only five domestic freight cars for August, builders continue to feel the result of strict economy measures that have been forced upon the buyers of rolling stock. Total awards for the 8-month period this year have aggregated only 389 cars compared to 7,965 for the same period last year and 35,104 during the first eight months of 1930. Formulation of plans for organization of the Railroad Finance Equipment Corp., with the Reconstruction Finance Corp. and several equipment manufacturers participating, now under way, may prove stimulating to car builders and general equipment purchases.



	1932	1931
Aug.	5	1,304
July	25	617
June	0	1,910
May	60	20
April	0	2,798



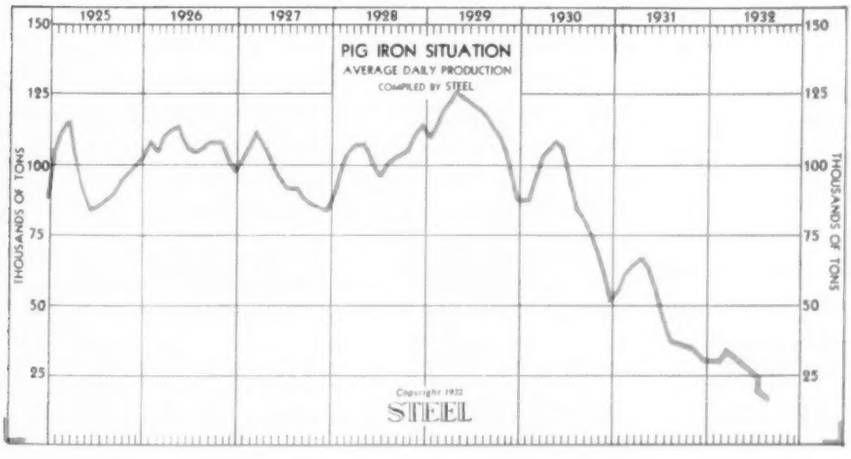
	1932	1931
Aug. 27	537,973	768,551
Aug. 20	518,642	748,600
Aug. 13	512,431	743,626
Aug. 6	496,033	734,730
July 30	510,687	761,818

Volume of Freight Traffic Expands for Third Consecutive Week

Loading of revenue freight for the week ending Aug. 27 totaled 537,973 cars. This is the third consecutive week in which there has been an upward trend in freight movement. According to the car service division of the American Railway association the current figure represents an increase of 19,331 cars above the previous week, but a reduction of 225,578 cars under the same period last year. Coal loading with an increase of 9,815 cars and miscellaneous freight with a gain of 6,335 cars above the preceding week was largely responsible for the expansion of freight traffic this week. Loading of grain products show a decline of 175 cars.

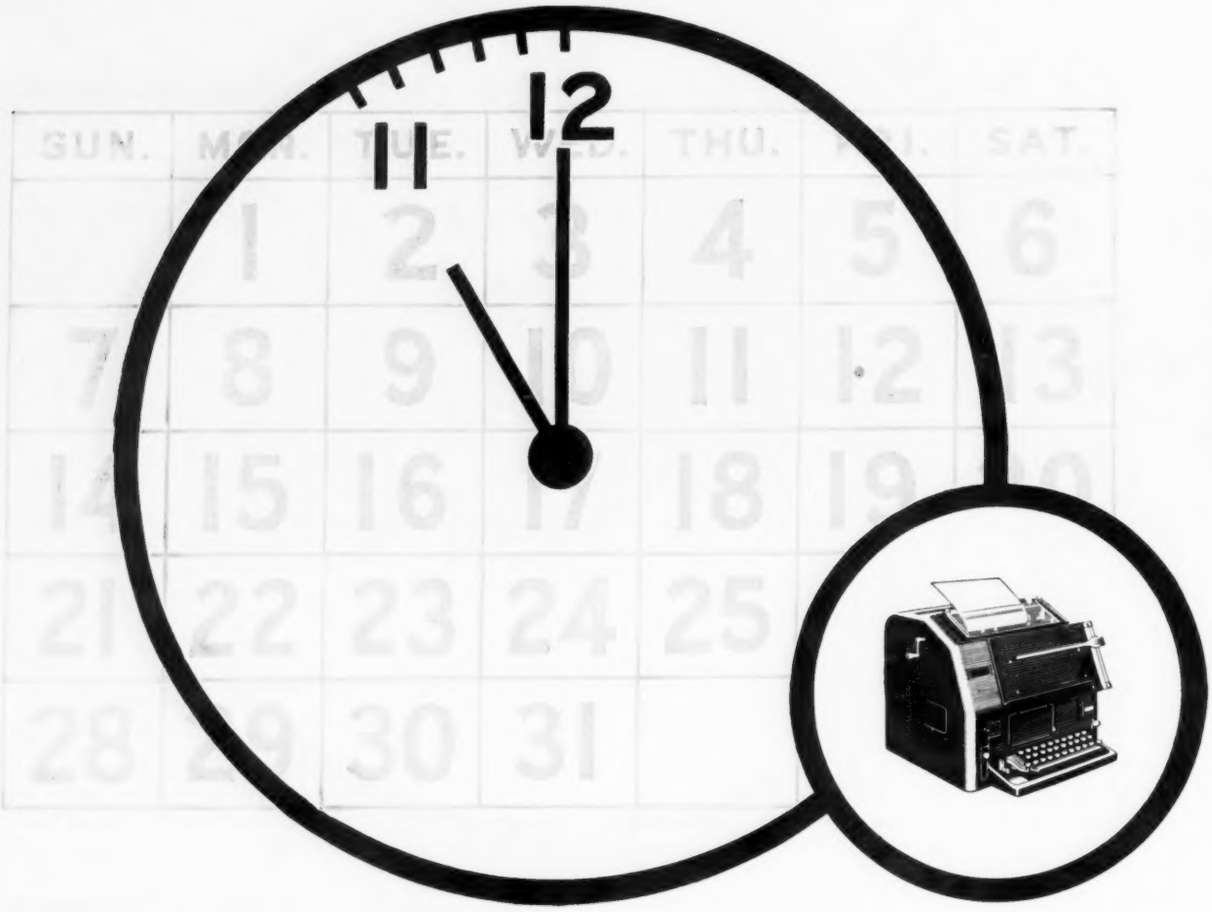
August Pig Iron Production Shrinks to Record Low

With an average daily production rate of 17,045 tons, output of coke pig iron in August slumped to the lowest level in 30 years, or since statistics have been compiled on a monthly basis. It is believed the August rate is the lowest since November, 1896. The current daily output represents a decrease of 1349 tons, or 7.3 per cent from the 18,394-ton rate of July. For August, one year ago, the rate stood at 41,264 tons. Total production of pig iron in August was 528,413 gross tons, which compared with the 570,222 tons of July was a loss of 41,809 tons. Output for the eight-month period ended in August totaled only 6,263,155 gross tons.

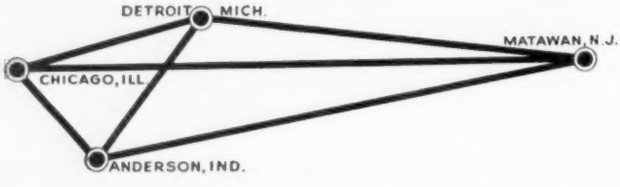


	1932	1931
Aug.	17,045	41,264
July	18,394	47,170
June	20,867	54,599
May	25,282	64,355
April	28,524	66,986

SERVICE BASED ON MINUTES RATHER THAN DAYS



Teletypewriter Exchange Service helps Hanson-Van Winkle-Munning Company co-ordinate activities of distant plants and offices, speed deliveries to customers, cut costs.



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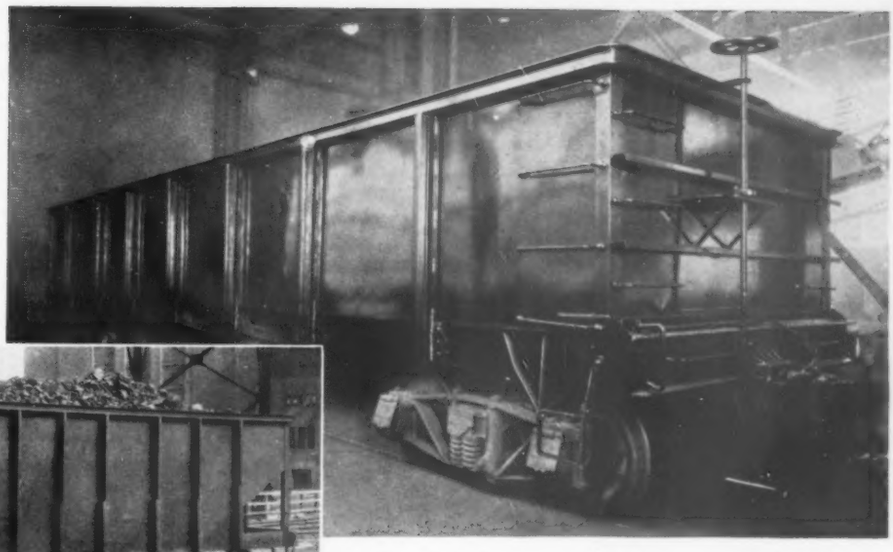

FIG. 1 (Below)—Rebuilt with arc welded steel, this hopper car will give many years of useful service. In the reconstruction work, welding was utilized to as full an extent as possible

Fig. 2 (Above)—A gondola car as it appeared after rebuilding by arc welding was completed. Approximately 1300 linear feet of welds were required and the welding time was about 175 hours

ARC WELDING PROVIDES ECONOMICAL MEANS FOR STEEL CAR REPAIR

BY WILLIAM H. ZORN

COMPLETION of the new Delray power house of the Detroit Edison Co. brought with it a new problem in the maintenance of rolling equipment. Installation of a new car tipper, which rolled the cars upside down while unloading, began to take a heavy toll. The continuous racking service to which the cars were thus subjected hastened the need for repairs on some of the older cars and made it apparent that upkeep would be a large factor. Arc welding was suggested for these repairs. As a preliminary test three gondola-type cars were selected as typifying the worst conditions to be met.

The men comprising the welding group constituted a capable force of structural steel and pipe welders drawing pay commensurate with their ability. The pay average for the group was much higher than the average shop rate for car repairs and welding. The erection crew consisted of men whose regular work was steel erection and they also drew a higher rate of pay than shop employes. Since this work was undertaken during a slack period of construction activity, the entire group was made up of men of long service and of correspondingly higher rate of pay.

Since the season of the year, February, 1930, made outside work impractical, a small section of the locomotive and crane shelter was used. The low roof of this building made it impossible to use a yard crane for erection purposes, al-

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THE accompanying article, describing how a large electric utility company in Detroit utilized electric arc welding to economical advantage in the maintenance and repair of its steel gondola and hopper cars, is abstracted from the $250 sixth prize award paper submitted in the recent second arc welding contest sponsored by the Lincoln Electric Co., Cleveland. All papers were judged by members of the electrical engineering school of Ohio State university, under chairmanship of Prof. E. E. Dreese, head of the department. The author, William H. Zorn, is general foreman of welding, Detroit Edison Co., Detroit.

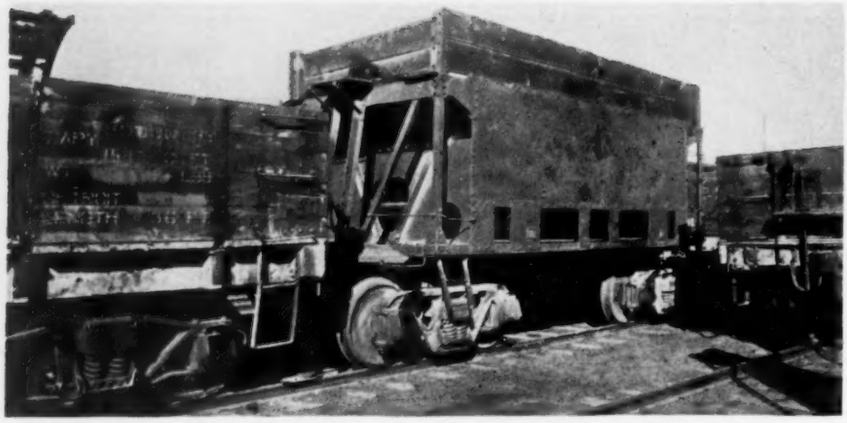

Fig. 3—Here are shown some of the old cars before rebuilding with arc welded steel bodies and sills. Ten cars of this type were rehabilitated and placed in serviceable condition

though it was possible to unload material part way within the shed by crane. The material then was dragged into the building on skids by chain-falls and tackle. All the materials were erected by hand using 4½-ton chain fall sets, and provided an interesting contrast to handling such a job in a modern car shop.

Another factor which entailed extra cost and much inconvenience was the routine demand upon the erection group. Being part of a construction force doing work in a territory roughly 100 miles in diameter naturally meant that the welding of cars took a position of secondary importance. This transferring from location to location on different jobs hampered the efforts of the erection crew during the building of the three experimental jobs, added considerably to the cost and was not conducive to that harmony of movement which makes for efficiency.

Total cost of rebuilding these cars was $3900, or $1300 each, a figure much higher than that for later cars rebuilt in 1931, but entirely satisfactory to the company since it represented a saving of almost 20 per cent over the estimate for riveting instead of welding the same cars. It was also felt that this cost did not represent a true comparison because of the adverse conditions under which the work was done.

Service Tests Favorable

In 1930 there was ample time to test and observe those cars to determine their ability to withstand the rough usage of actual service. It was apparent that a very sturdy car had been built, well able to withstand the constant yard shunting and tripping subsequent to unloading. No weld failures were found on any cars.

During the wrecking of the old bodies on these cars, close attention was paid to the areas most liable to damage by moisture and consequent corrosion. The space found in the worst condition was between the top of the center and side sills and the bottom plates. In some spots rust of more than ⅛-inch thickness was found and this condition was more or less prevalent in this whole area. In fact, the whole bottom body and sill structure showed that the ravages of corrosion had very considerably shortened their lives. A close inspection of the welded cars for a year failed to disclose any evidence of corrosion in the previously damaged areas.

Made Moisture Proof

Construction of the cars as shown in Fig. 5 precluded the possibility of any moisture pockets because these were automatically sealed during welding. In fact, these cars could be used to haul water, therefore "weep" holes were provided in them to afford drainage. This moisture-proof and corrosion-proof construction seemed to characterize arc-welded cars. Use of these cars in hauling water-laden coal from the docks to the storage yards proved their ability to withstand the shocks and strains which occur with repeated unloading by hoist-buckets. The absence of rivets speeded the unloading process and the buckets were able to clean up the bottoms better and faster than the bottoms of riveted cars. During the winter the cleaning up by hand of frozen cinders and coal was also more rapid and easier with these rebuilt cars.

No Weaknesses Disclosed

At the end of the year it was agreed that the cars were all that could be asked for in (1) Lower first cost; (2) sturdiness of construction; and (3) all-around efficiency during actual service. Furthermore, no repair work was necessary during this year, and, while it may be said that a year is a short time in the life of a steel car, it can be said that the 21 months which have elapsed from the time of their construction to the writing of this paper is long enough to disclose any weaknesses in their construction had any existed.

The new system made necessary an increase in the number of cars for yard purposes. The remainder of the cars at Delray also were steady for rebuilding and it was decided to rebuild all the cars at once at Delray. The work was started in February, 1931.

Ten old cars of the types shown in Fig. 3 and nine old steel cars at Delray were included, making a total of 19 cars. The trucks and draft gear on the purchased cars were inspected closely before buying and were in excellent condition. Six of the ten purchased cars had wooden bodies which were lifted off and burned; The other four had steel bodies which were scrapped.

These cars were rebuilt with new bodies, center and side sills all arc welded and new draft gear housing fabricated by arc welding and riveting. The Delray cars were inspected

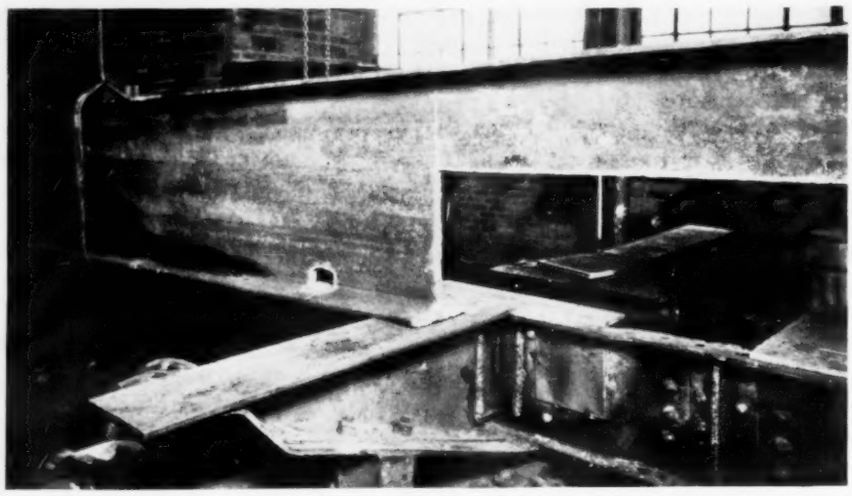

Fig. 4—This illustration shows the center sill torch cut to dimension and ready to be lowered into place for welding and riveting. The center sill is a 20-inch I-beam

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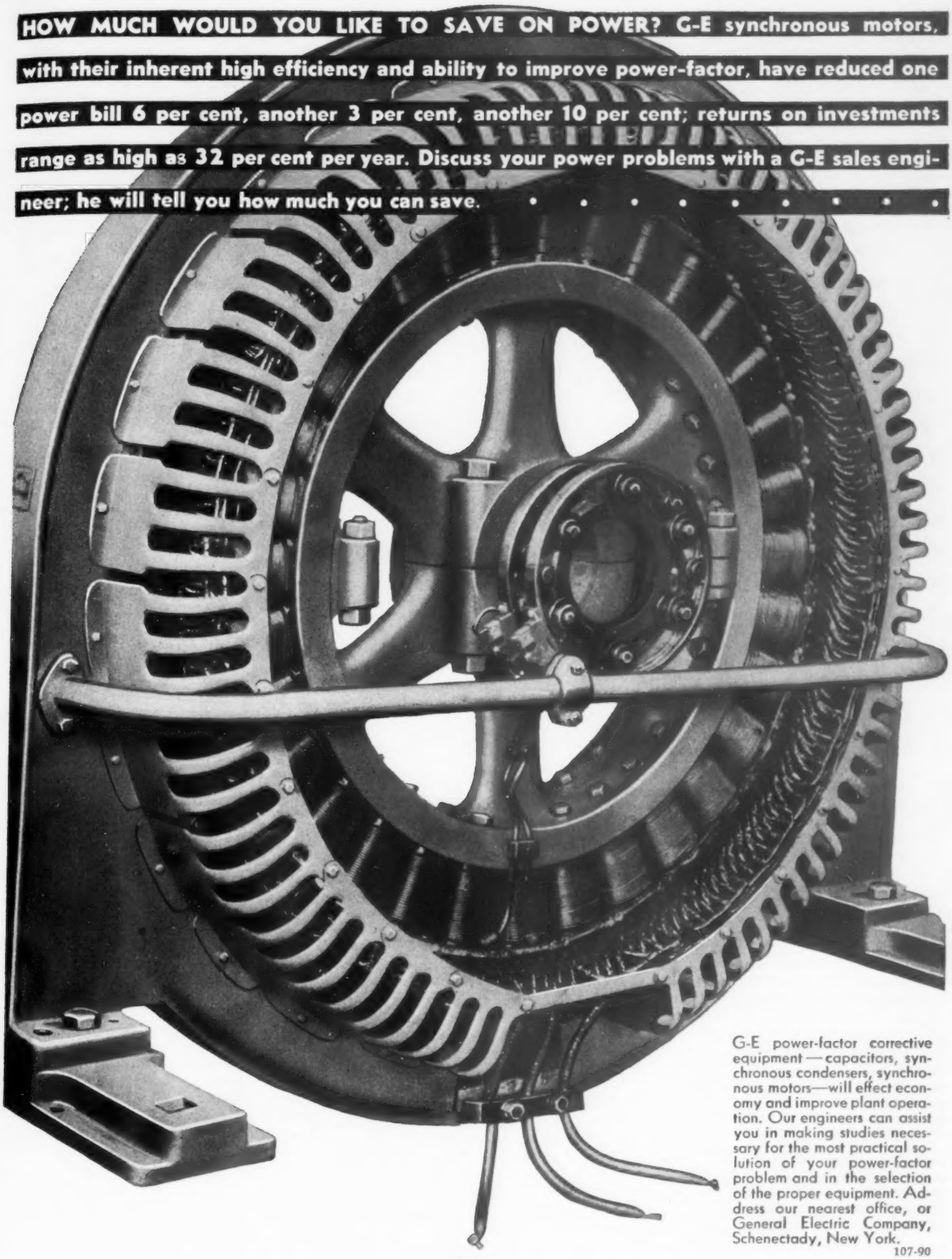

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carefully and where conditions warranted it, center and side sills were salvaged and re-used. These were thoroughly cleaned, scraped and brushed before being welded to the body. It was deemed advisable to combine riveting and welding on the draft gear housings of the Delray cars as their construction was such that this combination would facilitate greatly any repair work which might develop. The draw bar housings on the purchased cars were re-used after being strengthened by arc welding.

The side plates were 5 feet wide, 40 feet long and ¼-inch thick. The bottom plates were 6 feet wide, 40 feet long and ½-inch thick. The surplus stock on one bottom plate was torch cut and used as a butt-strap joining the bottom plates. The side stakes were 4-inch H-sections on most cars although some cars had side stakes of scrap 60-pound rail. These rail side stakes were used against the advice of the welding department and were not a success because of their brittleness. In some of them cracks developed through the rail, although no welds were affected. The side and end plates were placed on skids and side stakes, top curbs and end plate braces welded. The H-beam curb was continuously welded on top and tack welded on the bottom.

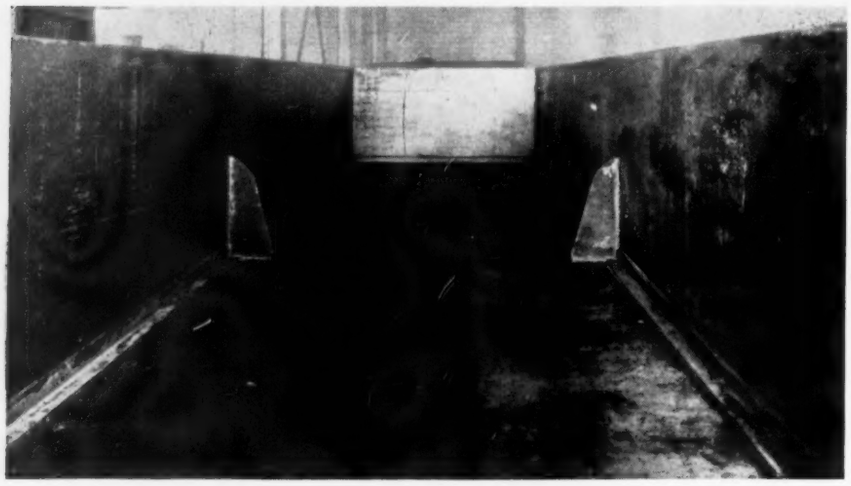

Fig. 5—With welded construction as shown in the interior of this car, moisture and corrosion can not affect the space between sills and bottom plates. Furthermore, cleaning up the car in unloading is made easier

Stakes Welded in Place

Side stakes were welded continuously on each side for 2 feet from the bottom and remainder tack welded. The top end of the side stakes was continuously welded to the bottom side of the top curb. The bottom ends of the side stakes were solidly welded to the side sills. The end plate curbs were welded the same as the side plate curbs, and channel stiffeners tack welded to them. During the assembly of the side and end plates the 20-inch I-beam center sill was torch cut to dimension, placed on trucks and welded and riveted in place. Fig. 4 shows welded side sills and method of cutting the center sill.

Details of Assembly

Welding and riveting on the draw-bar housings were completed as far as possible and the side sills, made up on the floor, were welded to the center sill. The bottom plates were then placed in position and tack welded. Inside corner, side and plate angles were tack welded in place. The body was ready for welding with the placing of the butt-strap on the bottom plates. The angle iron sections connecting the side and end plates to the bottom plates were continuously welded, as were the corner outside angles. The butt strap was continuously welded through both sides of its length and to the end plates. Both side brackets and the center sill were continuously welded to the bottom plates.

The balance of the welding on the draw bar housings was completed and the miscellaneous welding, such as end platforms, hand and air brake material, corner gussets, grab irons, etc., were fitted and welded. The grab irons and steps were bolted and the nuts tack welded to the bolts. The buffers were salvaged and arc welded to the cars. This whole assembly represents the use of arc-welding to the fullest extent possible on this type of job. A rebuilt gondola is shown in Fig. 2, and a hopper car in Fig. 1.

When the main members of the car were in place, the erection crew, with the exception of one man, proceeded with the demolition of the next car, and the cutting and layout of the materials for it were undertaken. By the time this was completed enough welders were free from the preceding car to do the floor work on the next one. A fairly continuous operation was thus evolved which reached a high state of efficiency after the first two or three cars were completed.

A computation of costs based on figures from the cost department and covering the three major factors, (1) materials, (2) erection and (3) welding, shows that the cost of welding was the smallest of the three. The cost of material, of course, was the largest item. Car No. 1002, a typical unit in which a new sill, side brackets, etc., were used, shows these three factors as follows: Erection, $223.40; welding, $169.80; material, $541.21, and total, $934.41.

The cost of miscellaneous items such as scraping, trucking, painting and welding electrodes made the complete cost for rebuilding the car $1066.25. There were approximately 1300 linear feet of welding on the car, a figure arrived at by adding a rough estimate for filling erection holes, spot welding of bolts, and other miscellaneous welding to the continuous and tack welding. A total of approximately 175 hours was required for welding. The average welding footage was approximately 7½ feet per hour, a fair average where so large a portion of welding was in a vertical and overhead position. On cars Nos. 122 and 124, the total erection cost was $402 or $201 each, and total welding costs $334.40 or $167.20 each.

These three cars were the first of the 1931 group of 22 to be rebuilt and represented a considerable saving over those rebuilt in 1930. As the rebuilding progressed, this cost was lowered until it struck an average total of $700 and $900 complete for cars rebuilt with salvaged center and side sills and cars having new center and side sills.

Saving Is Appreciable

The figure of $700 for rebuilding the cars with salvaged sills may be compared with figures from the Detroit Edison company's purchasing department on price inquiries of $1500 for a riveted body on the same used chassis. A price of $2200 for five sample cars of riveted construction which were used as demonstrators was submitted by a large railway equipment company. Other quotations were received on used gondola cars ranging from $545 to $755. Upon inspection these were found to be either in need of complete rebuilding or able to withstand only a few months' usage.

The welding and erection costs were approximately the same on the cars irrespective of use of salvaged or new sills, the reason probably being the extra labor involved in sal-

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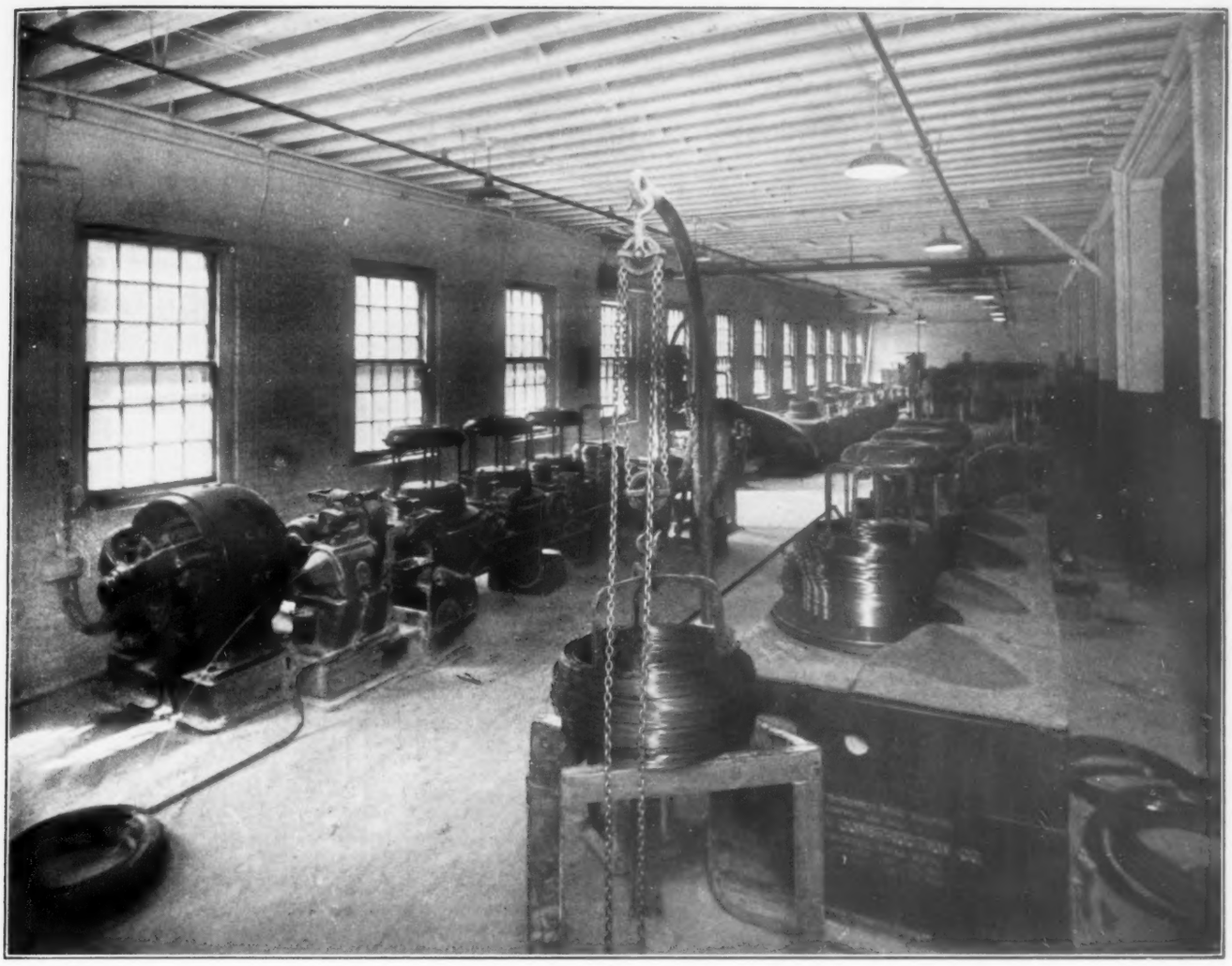

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COMBUSTION CONTROLS

Producing High-Grade Steel Castings for Pressure Work

BY FRED T. HAYS

STEEL foundrymen who have had experience in the manufacture of castings designed for service under high pressure of gases or liquids and at extreme temperatures of heat and cold, realize the many and peculiar hazards incident to production of this line of castings. Varying metal thicknesses in different parts of the same casting add to the difficulty of securing a dense, clean, homogeneous structure throughout.

Hydrostatic pressure will expose minor flaws and defects which would not be noticed and which would not affect adversely castings used in almost any other field. For this reason practically every pressure-resisting casting offers a special study to the foundryman. A species of instinct or knowledge gained only through long experience guides him in deciding on the important factors, heading, gating, chilling and condition of the sand to insure a casting perfectly clean and solid and with desirable or necessary physical properties.

Foundrymen Not Consulted

In the general jobbing foundry the patterns usually are supplied by the customer. Occasionally the design and construction have been subjected to the approval of the foundryman, but in the majority of instances he is not consulted. In many cases his ingenuity is tested severely in developing a method for securing a satisfactory casting from ill-designed patterns or rigging. He has to design heads and gates and see that they are placed in position to function properly on the casting. He has to decide upon the shape and application of shrink boards, plugs, hay rope, cinders, sawdust, or other devices or materials included with the sand of the mold and designed to facilitate the construction of the metal in the casting during solidification and cooling period.

Proper location of chills and vents demand attention. Moisture, strength and permeability of facing and backing sand, are factors of prime importance and should not be left to chance or to the manipulation of unskilled workmen. Core mixtures must be prepared to crush easily and thus offer a minimum amount of resistance to the contracting metal.

With all these features under control, there still remains the problem of producing a suitable metal, one possessing the necessary physical characteristics to meet the severe tests to which it will be subjected in service.

As a result of extended experiment and research the Atlantic Foundry Co., Akron, O., has developed a metal for use in pressure castings, a plain carbon steel which it is claimed easily can hold its own on a competitive basis with forged and welded products.

Defects Are Minimized

Reports from customers, prominent users of steel pressure resisting castings, indicate that improved furnace practice and close control of every feature are reflected in a highly satisfactory product. On one delivery of 244 pressure castings including ells, tees and valve bodies ranging in size from 2½ to 12 inches, only 11 minor welds were necessary in the customer's assembling department. On another shipment of 22 large ells and tees, the customer reported that the castings were 98 per cent perfect. A monthly welding bill of $150 formerly charged against the foundry by a large buyer of pressure castings has been reduced to less than $10.

The steel is melted in an electric furnace, built by the Pittsburgh Electric Furnace Co., Pittsburgh, and operating on an acid bottom. The furnace has a rated capacity of 3000 pounds per hour, the usual amount melted is 6500 pounds. Elasticity and advantages of this type of melting medium prove very satisfactory in a jobbing shop where requirements for heats range from 1000 to 8000 pounds per heat. The average life of the roof and side walls is 600 heats. Average power consumption is 525 kilowatt-hours per ton. With 8-inch graphite electrodes the average electrode cost is 80 cents per ton of metal melted.

Super refined mild, electric melted plain carbon steel made according to the method developed at the plant of the Atlantic Foundry Co. shows the following chemical analysis and physical properties:

Carbon, per cent	0.22-0.25
Manganese, per cent	0.65-0.75
Silicon, per cent	0.40-0.45
Phosphorus, per cent maximum	0.045
Sulphur, per cent maximum	0.045
Ultimate tensile strength, pounds per square inch	74,000
Yield point, pounds per square inch	46,000
Elongation in 2 inches, per cent	34.0
Reduction in area, per cent	52.0

Properties of this plain low carbon steel, particularly elongation, reduction in area and extraordinary bending test, may be visualized more clearly by comparing them with the properties called for in the specifications as outlined by the American Society for Testing Materials.

Compared With Specifications

Standard specifications for steel castings A 27-24, carbon steel for general service and for ships is divided into two classes: A, castings which are not heat treated and for which no physical requirements are specified; B, heat treated castings in which the physical requirements vary according to whether the steel falls into the hard, medium or soft grade.

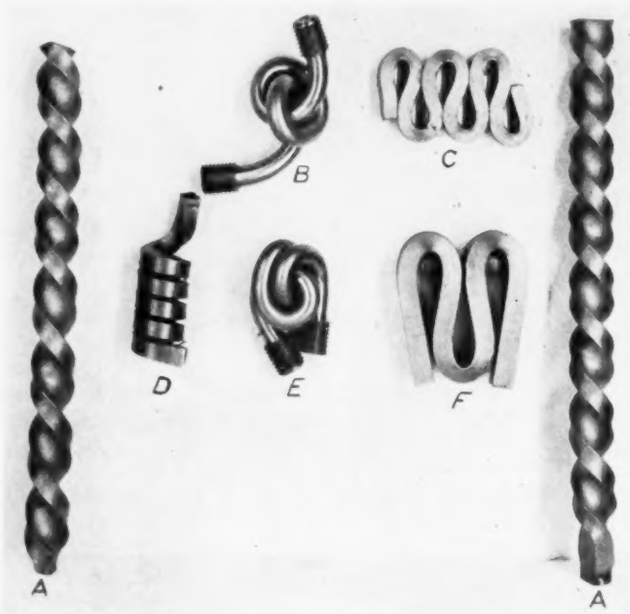
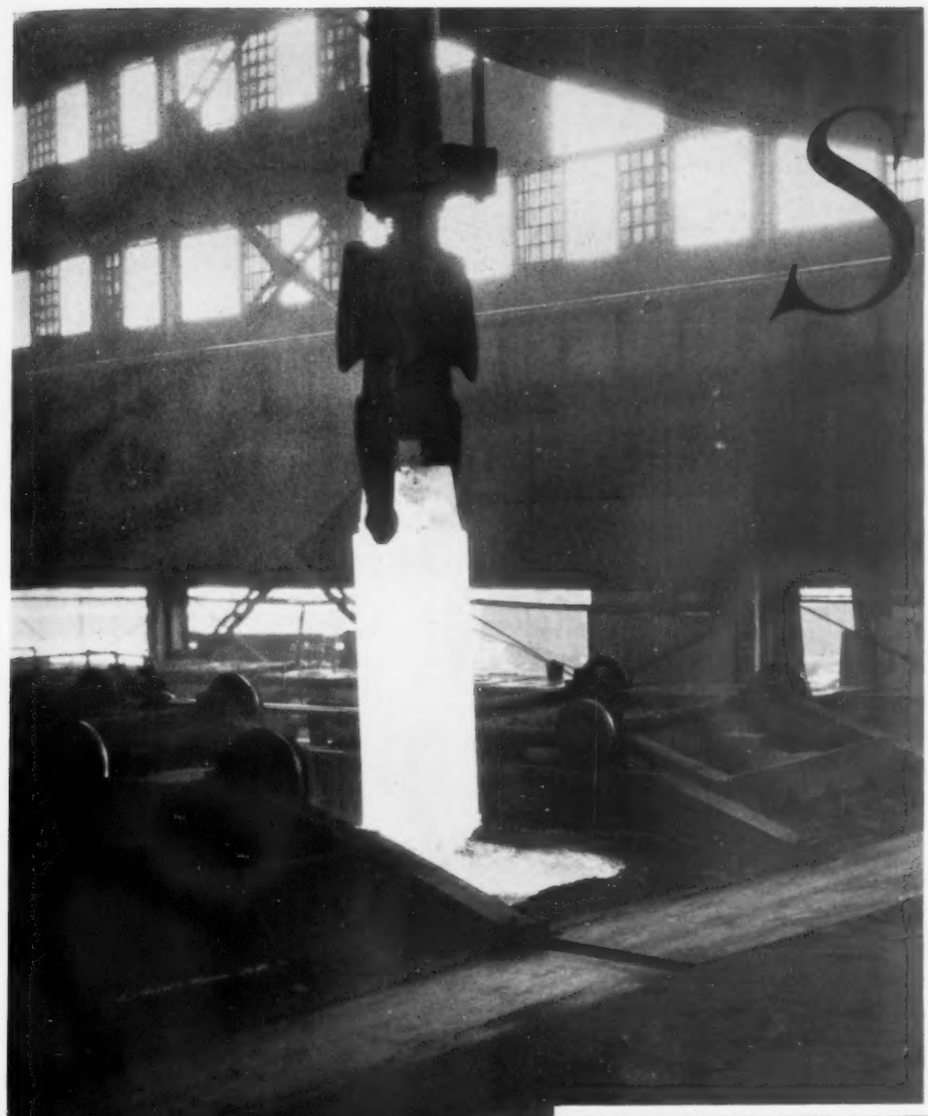


Fig. 1—Results from various tests of a steel falling within the soft grade classification with 0.22 to 0.25 per cent carbon. Tensile strength is 74,000 pounds per square inch, reduction in area 52 per cent and elongation in 2 inches 34 per cent



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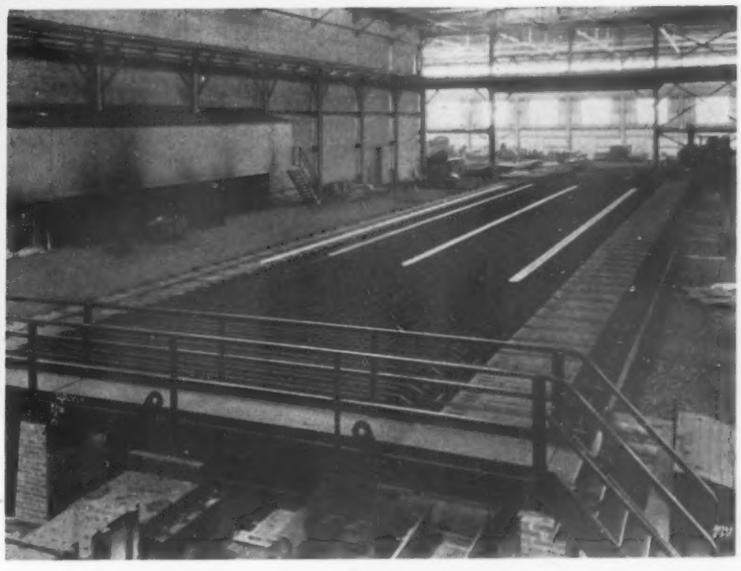

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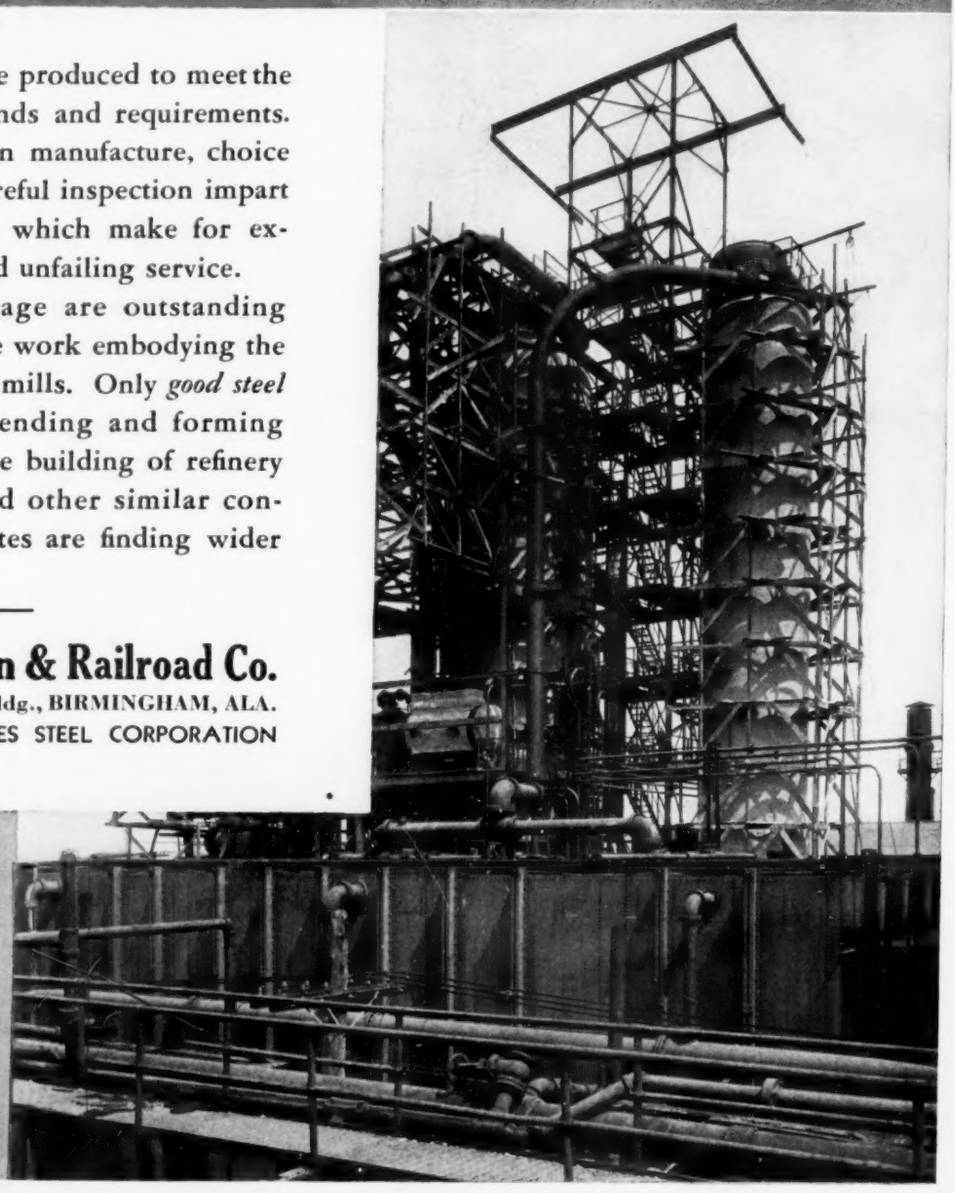

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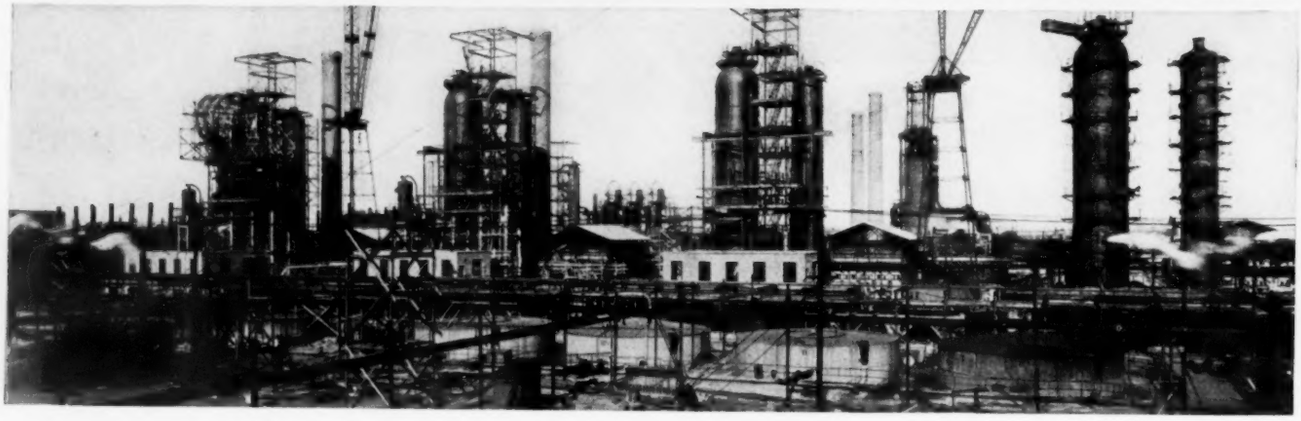


In class B the carbon is not specified. The phosphorus in acid practice must not exceed 0.06 per cent and in basic practice not over 0.05 per cent. The sulphur maximum is 0.06 per cent.

In the hard, medium and soft grades the minimum tensile strengths in pounds per square inch are 80,000, 70,000 and 60,000. The percentage elongation in 2 inches on the same classification is 17, 20 and 24. Reduction in area also shown in percentage is 25, 30 and 35.

Must Bend Without Cracking

The bending test specified by the A. S. T. M. on this steel on castings intended for general service, medium and soft grades is applied only when definitely specified in the order. It is not required on hard grade castings for general service. In this form of test, the specimen must bend cold without cracking on the outside of bent portion around a pin 1-inch in diameter. Medium steel must bend to at least an angle of 90 degrees. Soft steel must bend around the pin to an angle of at least 120 degrees without showing any indication of crack or rupture on the outside surface.

Test bars shown in Fig. 1 were cast from a steel falling in the soft range 0.22-0.25 per cent carbon, and yet the tensile strength is 74,000 pounds per square inch, the reduction in area is 52 per cent and the elongation in 2 inches is 34 per cent.

The bending test has been exceeded to an extraordinary degree. The ½-inch round bars B and E have been twisted and tied in knots involving bends sharper and more extended than any taken around a 1-inch pin. The rectangular bar ½ x 1 x 14 inches designated as D was coiled around a ½-inch pin for five full turns. Another bar of the same kind marked C was doubled and redoubled into six loops without showing any sign of a crack on the outer face. The two straight bars A A, ½ x 1 x 14 inches were given between three and four complete twists. The entire surface of all these test bars is as clean and smooth and free from rupture of any kind as before the twisting and bending operation began. All bars were bent while they were cold.

Harry E. Orr, melting superintendent and the author, formerly metallurgist, the Atlantic Foundry Co., were responsible for the development of this special steel and stress the importance of the following points in working heats in an electric furnace:

1. Skilled knowledge to care for the furnace bottom, refractories and mechanism.

2. Selection and use of good scrap of known chemical analysis, free from any alloys or inclusions which would adversely affect physical properties of the casting.

3. Arrange the charge so that the bath will show the desired chemical analysis when melted. This will eliminate excessive use of iron oxide for boiling out the heat.

4. Keeping a good action in the bath during refining period.

5. Keeping slag at proper viscosity and composition during preparation of heat.

6. Close control of metal temperature to prevent excessive reduction of silica.

7. The first slag is skimmed and the metal covered with a second cleansing slag.

8. Proper use of manganaese during refining period.

9. Omit aluminum or other unnecessary final deoxidizers.

10. Control of final chemical analysis.

11. Control of pouring temperature to suit the type of casting.

12. Proper heat treatment of finished steel castings.

Molding Skill Required

A mold for a typical casting for high-pressure service is shown in Figs. 2 and 3. On account of its size and weight this mold was made in dry sand, but the majority of the smaller castings are made in green sand molds. In this instance a sprue at the far right conveys the metal to two gates, one at the bottom of

Fig. 2 (Left)—Mold for a typical casting for high-pressure service. Because of size and weight, this mold was made in dry sand, but the majority of smaller castings are made in green sand molds. Fig. 3 (Right)—A sprue at the far right conducts the metal to two gates at the bottom of each of two adjoining flanges

each of two adjoining flanges. An auxiliary gate is cut at the joint to the same two flanges. The most noticeable feature of these illustrations to a steel foundryman, is the entire absence of brackets connecting the flanges of the mold to the body. Skilled molding and melting practice have rendered their use necessary.

Canopy of Corrugated Steel Sheets Replaces Canvas Awning

BY F. D. HARTFORD
Denver, Colo.

CANVAS awnings on the office buildings of smelter, steel mill, foundry and chemical plant usually have a hard life. Sulphurous gases from the plant stacks form, with rain or snow, a weak acid that is particularly destructive to cotton fibers. Even though such canvas may be treated with varous preservatives, its life is not lengthened greatly. Furthermore, canvas awnings are a constant irritation to plant maintenance crews since custodians or office employes often raise them up while damp or leave them lowered during violent wind storms.

Frame Also of Steel

One steel plant maintenance official who every two years was forced to renew a canvas awning at an especially windy corner of a building housing a drafting room, took to heart the slogans of his own industry and finally replaced the awning with the corrugated steel covered, steel frame canopy shown in the accompanying illustration.

Steel outriggers are expansion bolted into the brickwork. Suspender rod eyebolts extend through the wall and are secured by nuts on the inside above the suspended ceiling. An ornamental iron bracket on the outer corner provides a decorative effect to the assembly. The underside of the bright galvanized corrugated sheets reflects a pleasing amount of light that is lacking when the sheets are painted conventional red or black. Aluminum paint might have been used over the steelwork to even greater advantage. A corrugated flashing, not visible in the illustration, is calked into the brick course above the canopy roofing and extends 6 inches down the slope to prevent leakage behind the canopy.

Cost of the installation was about 2½ times that of the former canvas awning but the life of the corrugated sheets should be at least 15 years and that of the structural supports as long as that of the building itself.

ALTHOUGH cost of the steel canopy is about 2½ times that of a canvas awning, it requires little maintenance and will outlast the latter by many years

Forging Institute Plans Meeting

THE American Drop Forging institute announces its annual meeting to be held in Buffalo Oct. 4-5, in conjunction with the Fourteenth National Metal congress and exposition sponsered by the American Society for Steel Treating. This meeting will be open to the entire drop forge industry.

One of the most important subjects scheduled for discussion will be the survey of the drop forge industry completed recently by the department of commerce, Washington. This survey was sponsored by the American Drop Forging institute, and it is the first time in the history of the industry that it has been able to assemble basic facts pertaining to production, sales, capacity, and many other statistics of importance. According to the institute, this information should enable executives to base future decisions of policy on facts.

The department of commerce reports that never before has any industry manifested the interest in compiling data in a survey as has the drop forge industry. Approximately 95 per cent of the questionnaires sent out were answered and returned.

The program for the institute's meeting has been announced as follows:

Tuesday, Oct. 4

AFTERNOON

"Further Experiments on the Forgeability of Steel," by O. W. Ellis, Ontario Research Foundation, Toronto, Ont.

"Drop Forge Practice," by Adam Steever, metallurgist, Great Lakes Forge Co., Chicago.

"Heating of Steel for Forging," by R. E. Waldron, Dominion Forge & Stamping Co., Walkerville, Ont., and N. L. Deuble, Republic Steel Corp., Massillon, O.

"The Behavior of Steel in Sulphur-Containing Atmospheres at Forging Temperatures," by D. W. Murphy, University of Michigan, Ann Arbor, Mich.

Wednesday, Oct. 5

MORNING

"Industry's Challenge to Trade Associations," by C. H. Smith, president, Steel Improvement & Forge Co., Cleveland, and president, American Drop Forging institute.

"Discussion of Survey Made by United States Department of Commerce," by J. B. Sehl, cost agent, American Drop Forging institute.

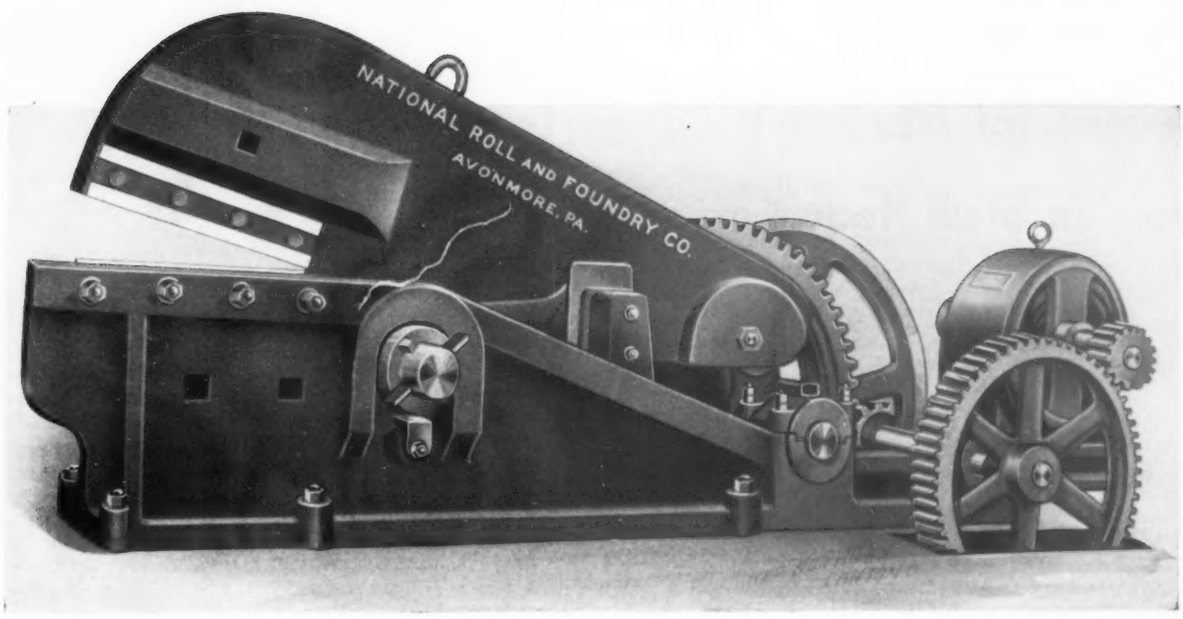
Welding Proves Economical For Steel Car Repair

(Concluded from Page 26)

vage operations. The saving in material is apparent. A conservative estimate is a saving of 40 per cent to the Detroit Edison Co. on these cars as compared with quotations on similar cars of riveted construction. Estimates for riveting instead of welding, to be done by the Detroit Edison Co., were 25 per cent higher.

Considering prime factors of construction cost, it is probable that a considerable saving would have been effected by building these cars in a shop properly equipped for this purpose. The saving in wages would amount possibly to 20 per cent due to the difference between field and shop rates. A further substantial saving would result from the use of shop erection equipment and practice; the use of overhead cranes alone

"NATIONAL" ROLL



SPECIAL HIGH KNIFE SCRAP SHEARS
AND
ROLLING MILL MACHINERY

PLAIN CHILLED ROLLS
SPECIAL CHILLED ROLLS
COLD ROLLS
SAND ROLLS

ROLLS

EXTRA HARD ROLLS
FOR
BRASS
COPPER
ALUMINUM

THE NATIONAL ROLL & FOUNDRY COMPANY
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would cut much from the cost of wrecking and erection. Probably the erection costs could be cut in half in a modern car shop. The purchase of materials in large quantities would permit an appreciable economy. This compares with described conditions where the materials used were from surplus stock, and were heavier than necessary for the purpose, thus entailing a large amount of layout and torch cutting.

Another matter worthy of serious consideration would be the use of the new type heavy-coated electrodes recently introduced. Automatic welding would double production per linear foot per hour with a consequent economy of about 50 per cent.

If companies manufacturing steel cars were to equip their plants for arc welding, the savings made in weight, in labor, in maintenance and repairs would amount to millions of dollars in a comparatively short period. Of first and paramount importance is the fact that these savings would not be at the expense of quality but would aid in the production of a superior product.

Use of arc welding as a major construction and maintenance operation in the Detroit Edison Co. is a comparatively recent development. This welding program was successful because of strict attention to fundamentals, laboratory check-ups, and finally, because of intelligent selection of materials and men involved in the work.

Demand for Modern Buildings To Broaden Steel Requirements

(*Concluded from Page* 12)

anywhere near their capacity, and, built during the time of high costs, and still unrelieved from high taxes, rents are prohibitive.

The same applies to many of the large office buildings erected during 1928 and 1929. The Empire State building, Lincoln building, Chrysler and other large buildings have never been rented to more than 50 to 60 per cent. Fabricators say it will take a long time to "shake-down" the real estate market in New York, notably Manhattan, before the credit situation, or the bankers, will finance speculative building. Some of the fabricators have not yet been paid for steel that went into certain buildings.

Not So Gloomy Elsewhere

In the other New York city boroughs the situation is not so gloomy. The trend in the other boroughs will be toward buildings of lower height, taking less steel per unit. While demand for structural material in New York city is below normal—far below for private construction—public work at this time appears to be above normal, with indications that with stimulated public work this will continue to be the case for some time.

In other eastern districts, in the Middle West and Pacific coast districts building is far below normal, and it is in these districts that potential demand for private enterprise is likely to develop more rapidly and in greater volume proportionately than in New York.

On the favorable side of building are such factors as the decidedly lower costs of materials, lower building wages in many districts, the tendency of organized labor being to accept much less than the "official" scale, and the prospect that next spring there will be further definite wage revisions. The present trend toward easier credit also is an important factor. Land values are lower than they have been in many years. This is especially true in outlying areas, where extension of power transmission lines and public improvements of all kinds is making it more practical and economical for industrial operations.

Plants Move to Environs

"Decentralization" of manufacturing operations—the movement of factories away from cities and congested areas—started before the depression, and may revive more vigorously in the future. There have been recent instances of large industrial establishments giving up locations in cities, building plants more suitable to their needs, outside the high tax zones, abutting railroads. The president of one such company said that the saving on trucking expense alone will prove to be an important item.

Industrial building engineers see a surplus of factory space now available, but they know that much of it is "uneconomical." They believe that occupants will be under a terrific handicap in the competition certain to develop in the near future. They have noted that markets have shifted from one locality to another; that some companies have turned to new or different products; that in reality there is a greater potential demand than ever before for modern factories. The conviction is strong, however, that industry must feel the spur of active competition, engendered by improved demands, before there can be a widespread and substantial revival in factory building.

Among the first of manufacturing companies that went into receivers' hands in this depression are noted some who had meritorious products and reputations, but whose building facilities harked back to days before the war. Just by way of illustration, it was found by actual survey that the majority of manufacturers of dairy products are operating obsolete plants; the average age was 13 years; some plants were built as far back as 1898. The average age of laundry plants was disclosed as 15 years; many plants being 30 to 40 years old.

Obsolete buildings house modern mechanical equipment, but it is impossible for the owners to attain the best results from such investments without the proper kind of plant. Steel fabricators view the majority of commercial buildings today as too old, obsolete, "eye sores," or "fire traps."

Demand for building space, and new building construction in general is senstitive to general business conditions. The latest reports regarding commercial and industrial buildings indicate a slowly rising demand for space in some districts; no further losses in others. The National Lumber Manufacturers association is taking cheer from the fact that lumber orders for the week ended Aug. 29 were the largest of any week this year, exceeding production by 46 per cent. The Southern Pine association for the second week shows orders appreciably ahead of last year.

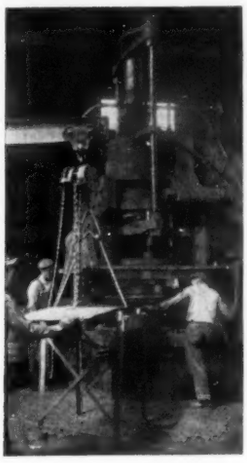
To sum up: Private building enterprise in this country has been nearly paralyzed for two years. The fact that there was an excess of speculative building of the office and apartment-house type in some localities during 1928 and 1929 does not materially alter the situation with respect to normal requirements for building construction. These requirements are certain to re-assert themselves at the first favorable signs of business.

Rivet Maker Announcing Line of Welding Rods

After 40 years engaged in the manufacture of rivets, the Champion Rivet Co., Cleveland, announces a new line of general purpose welding rods. Recognizing the fact that welding as a process has made definite scientific progress, the company makes this radical addition to its products to afford its customers a complete metal joining service.

Several years of experimenting are represented in the line of welding rods and the company is satisfied that the new product will gain the same recognition in the welding field which its rivets have enjoyed in their field.

Making the Most of



METHODS AND MATERIALS

FREQUENTLY it is found desirable to perform bending and forming operations on metal parts after they have been electroplated and this can be accomplished without difficulty if the deposit is ductile, possesses good adherence and completely covers the base metal. This practice is followed by a radio equipment manufacturer which produces several types of condensers, the frames for which are formed from the same blank. For economy the number of processed parts carried in stock is kept at a minimum, therefore, the frame blanks are electroplated with cadmium while in the flat condition. Cleaning before plating can be done more efficiently and the flat surfaces receive a more uniform metal deposit on both sides. When stamped into the desired form, the plated blanks are able to withstand severe forming at sharp corners without breaking the corrosion-resisting coating.

$ $ $

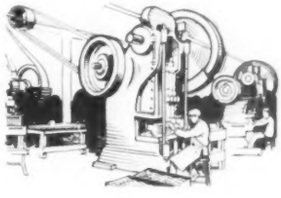
Molybdenum as an alloying agent in gray iron is receiving close attention in the automotive industry. Iron containing between 0.35 and 0.75 per cent of this element has been used in cylinder blocks, cylinder heads and brake drums, and now it is finding use in clutch plates and camshafts. One order for 10,000 camshafts to be made of molybdenum iron is understood to have been placed recently.

$ $ $

Some difficulty was encountered by a grinding machine manufacturer in maintaining the size of holes bored in gray iron castings. The holes, 5 inches in diameter and 3 inches deep, were bored in a turret lathe, using a pilot bar. It being desired to hold the size within 0.0002 inch, the finishing cut removed from 0.008 to 0.010 inch. The high-speed steel tools used wore rapidly and required resharpening and resetting frequently. Tungsten carbide tools were tried and as a result it was possible to complete several hundred parts without resharpening. Moreover, the turret lathe was speeded up from 80 to 350 feet per minute.

$ $ $

In general, most ferrous metals can be brazed in hydrogen with satisfactory results. In this group are low-carbon, high-carbon, carburizing and high-speed steel. Stainless steels containing chromium will not braze because their stainless property is due to a surface film of chromium oxide which is not reduced by commercial hydrogen, hence the surfaces cannot be cleaned satisfactorily to allow for the flow of copper. Chromium, aluminum and silicon are all offenders in this manner. If the chromium does not exceed 0.5 per cent, the metal will braze satisfactorily. Little difficulty is encountered in brazing steels of low nickel content; with high nickel content, it is sometimes difficult for the copper to flow far into the joints. Tungsten, molybdenum and tungsten-carbide alloys braze satisfactorily. Gray cast iron has been copper brazed in the laboratory, but brazing of malleable iron is more easily accomplished.



A POWER punch press in a Midwestern plant recently repeated through unusual circumstances. A small steel clamp or block slid off the inclined bed, slipped down between the bed and the frame and when the operator tripped the press, this block wedged between the latch rod and the frame preventing the treadle from coming up and causing the press to operate continuously. Fortunately, the job was properly developed in that the set-up did not require the pieces to be removed by hand, otherwise the operator surely would have lost his hand. To prevent a recurrence, the company covered the space between the bed and frame with a strip of tin, this preventing any object from falling through.

$ $ $

Considering its work hardening property, wire made from 18-8 chrome-nickel steel is somewhat difficult to cold head. It is cold headed successfully where the displacement of metal is moderate and consequently is being worked into rivets and bolts.

$ $ $

Steel companies are making more use of welded steel construction in new installations and in maintenance work. Shear frames are being made of cut and welded steel plates and structural shapes. This same method is being applied to many different kinds of work. Recently one steel company made a single swing-disk check valve for installation in the blast furnace line, to prevent back flow of the gas. The chamber lid, flanges and disk all were cut out of plate and welded together. A length of steel bar was used for making the counterweight lever, and a piece of shafting was used in forming the hinge for the swinging disk. This valve is 2 feet in diameter and by constructing it in this manner, on the premises, out of its own steel, the steel company saved a tidy sum of money

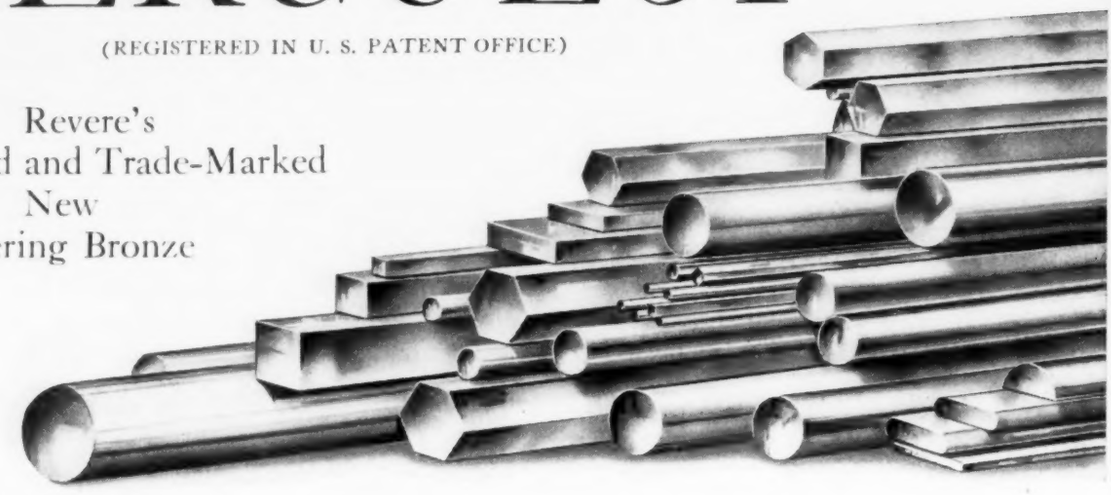
$ $ $

A southern pipe fabricating plant recently installed a new gas-fired furnace for heating large diameter steel pipe prior to bending. The pipe is filled with sand and the ends plugged before it is put into the furnace to keep it from buckling when it is bent. The heated pipe is withdrawn and placed on the bending table by an overhead crane. One end is chained in place and the other drawn by an hydraulic cylinder around cast-iron forms set to give the desired bend. Approximately 4 hours are required for this operation on a section of 24-inch pipe from a cold start. The furnace has a capacity of 7350 cubic feet per hour. When a short length of pipe is to be heated, a temporary fire brick wall is built inside the furnace, leaving the desired length and the flues at the other end covered to prevent circulation.

HERCULOY

(REGISTERED IN U. S. PATENT OFFICE)

Revere's
Patented and Trade-Marked
New
Engineering Bronze



in RODS . . . BARS . . . SHAPES

Herculoy Rods, Bars and Shapes are available in hot rolled and also in cold drawn finishes and tempers. Herculoy is also furnished in round rods specially made and straightened for shafting or for pump piston-rods.

PHYSICAL PROPERTIES

Herculoy in rod form will be found particularly useful in the engineering field. The physical properties can be varied by treatment during production, in accordance with requirements and specifications, within the following limits:

Material	Tensile Strength *(lbs. per sq. in.)*	Elongation *(in 2 inches)*
Hot Rolled—from a minimum of	67,000	60%
Cold Drawn—to a maximum of	125,000	10%

The above limits of strength are comparable with the low and medium carbon steels. In addition, Herculoy Rods and Shapes are highly ductile (they may be stressed to the yield point without damage), non-magnetic, and possess the corrosion-resisting properties of pure copper. Moreover, they are immune to season cracking.

For Bolts and Nuts (above). For Heavy Valve Stems Forged, Upset and Finished

Herculoy may be easily worked either hot or cold, and its freedom from brittleness when cold-headed is a valuable characteristic.

USES:

Bolts, nuts, rivets, nails, propeller shafts, pump piston-rods, forging rods, screw-machine parts, bus fittings, transmission-line hardware and accessories.

Herculoy is particularly suitable for parts continually exposed to severe weather conditions, to salt air or to gas fumes. It is also recommended for equipment submerged in water.

Herculoy is also available in the following forms: sheets and plates; rolls and strips; die-pressed or hammered forgings; rivets; welding rods; and ingots for sand casting.

For further data address Revere Copper and Brass Incorporated, 230 Park Avenue, New York City.

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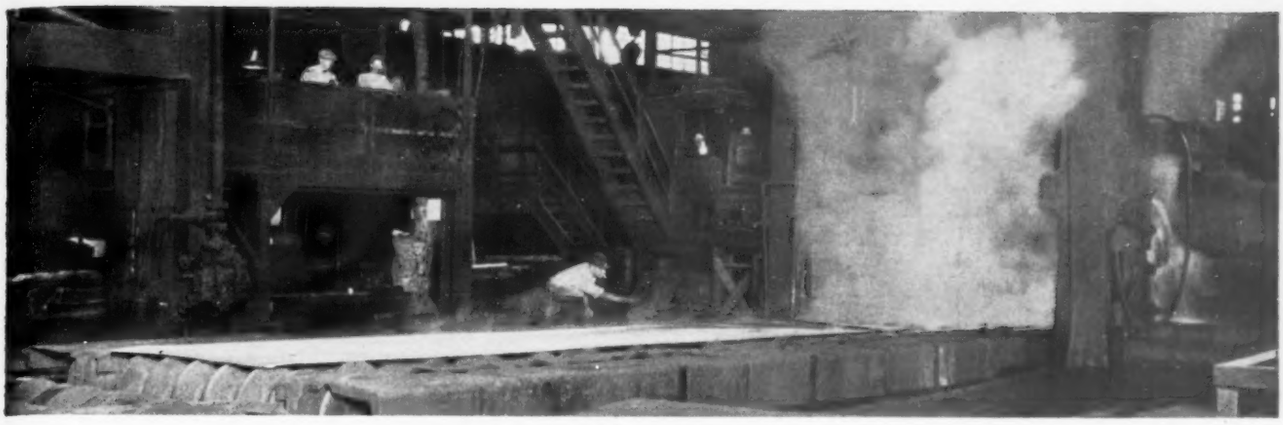
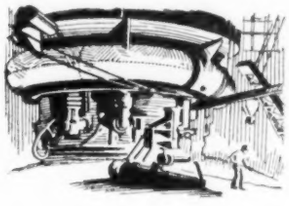


PROGRESS IN STEELMAKING

EXTERIOR as well as interior surfaces of tanks, gasometers, pipe and galvanized sheet covered buildings may be effectively corrosion inhibited by coating with a recently developed paint having high temperature, acid and abrasive-resisting characteristics. Soft steel scraped across a painted surface is abraded by the paint and no blistering occurs when galvanized pipe coated with the paint is heated to an orange color, according to recent tests.



INCREASING the sinter in the burden from about 45 to 68 per cent and the hot blast temperature 150 degrees Fahr. on a stack with a 24-foot hearth has effected an increase in the daily output of 90 tons, a reduction of 475 pounds of coke per ton of pig and a decrease in the output of flue dust of 15 pounds per ton of iron with a lower volume of wind blown. The sinter used in the burden analyzes about 59 per cent iron and is made from 75 per cent flue dust and 25 per cent mill scale or fine Mesabi ore.

♦ ♦ ♦

Welded thin-walled tubing of alloy heat-resisting quality now is available for high-temperature application. Its principal use is a container for annealing steel sections in a reducing atmosphere and in superheaters.

♦ ♦ ♦

Lubricating the roll neck bearings of a 3-high 28-inch roughing stand of a rail mill by a pressure system reduced the peak load 18 per cent, increased the life of the bearings 100 per cent, curtailed the amount of the lubricant used and afforded a freer running mill. The grease formerly was packed against the neck on the entering side of the bearing and carried between the neck and bearing by the rotation of the roll.

♦ ♦ ♦

Nondestructive examination of steel tubes for boilers and condensers now is possible at the finishing end of the mill by an "Introscope" recently developed in England. The instrument essentially is a polished nickel tube ¼-inch diameter and less in which are located a miniature electric light bulb, a wide angle objective, a prism, auxiliary lense and reversing lenses. By changing the position of the device the interior wall surface of the tubes can be examined systematically and accurately.

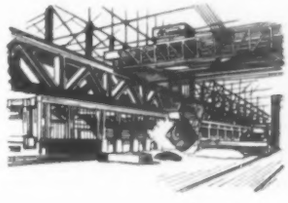
SAVINGS ranging from 25 to 40 per cent of the drafting time and greater accuracy in the preparation of steel mill line drawings are claimed for an improved drafting machine. The ball bearing equipped unit may be pushed out of the way leaving the top of the drafting table clear. The nickel silver protractor, which can be turned in a full circle, is built with automatic stops at 0, 30, 45, 60 and 90 degrees in all four of the quadrants.

♦ ♦ ♦

Nickel-iron sponge in briquet form has been made successfully in a direct process from nickel-copper ores, and the sponge used in the production of nickel steels, which compare favorably in physical and strength tests with nickel steels of similar S.A.E. specifications made in the usual way. In addition to the briquets, the furnace charges included boiler plate punchings and the necessary ferroalloys to produce steel of the desired specifications.

♦ ♦ ♦

Experiments with natural gas burned with a luminous flame disclose that 1½ million B.t.u.'s are required to anneal strip and sheets.



ADDITIONAL preheat of combustion air has been obtained on a 115-ton open-hearth furnace in Ohio by the installation of secondary regenerators in the flues. The checkers in the secondary chamber are solid longitudinal walls 4½ inches thick, spaced 4½ inches apart and tied together with standard 4 x 9-inch brick. The latter is laid at right angles and is spaced 3 feet apart vertically and 5 inches horizontally. The secondary chamber is 12 feet 7 inches long, 11½ feet wide and 4¾ feet deep at the spring line with a 2½-foot rise.

♦ ♦ ♦

Close and accurate control of the frequency of current interruption in line welding and an increase in speed of interrupting the flow of current up to 1800 per minute are afforded by a newly developed thyratron tube timing control for steel plant service. The new synchronous tube timer has no moving parts and is not subject to such wear as is involved in mechanical contractors.

Scanning the Field of Technology

A Digest of Important Developments Pertaining to the Production, Processing, Application and Performance of Steel

Conveyors Help To Combat Production Problems

By Charles A. Adams, in Blast Furnace and Steel Plant, August, 1932, p. 655, 3 pp., 10 illusts.

Materials must be moved in order to produce a marketable product, moved economically so as to meet today's market conditions. The steel industry is realizing the importance of applying materials moving equipment to their many production problems. This article illustrates and describes ten applications of conveyor equipment in steel mill service, including a method for feeding sheets to cold roll mills; roller bed chain conveyors used for moving hot coiled strip from vertical coilers to tying platform; automatic wheel furnace runout table for delivering packs and matched breakdowns from furnace to roller's table; a four-rail wheel conveyor at charging end of pair furnace; a three-chain conveyor for transferring finished sheet packs from catcher table to squaring shears; ball transfers for handling large plates to and from shears; and others.

—STEEL, 9-12-32

New Rockwell Superficial Hardness Tester

By V. E. Lysaght, Metals and Alloys, August, 1932, p. 185, 3½ pp., 7 illusts.

Rapid growth in the use of the nitriding process for the surface hardening of steels has created a demand from the industry for a means of measuring the hardness of this superficial layer or case. Mechanical requirements for a tester are that it should be rapid, convenient, accurate, universal and automatic. After extensive investigation the Rockwell superficial hardness tester was designed. In appearance the machine does not differ materially from the regular type of Rockwell tester, but the loading and depth measuring systems are radically different. The hardness number obtained with the new model is based upon the regular Rockwell principle—namely an increment in depth due to an increment in load. The initial or minor load is 3 kilograms and the major load either 15, 30 or 45 kilograms.

To compensate for loss of sensitivity caused by using lighter load, a depth measuring system was devised, twice as sensitive as the regular type, and giving a sensitivity which compares favorably with the sensitivity of the standard "C" scale. Many of the moving parts were redesigned. The speed of application of the major load is controlled by a dashpot and valve, giving a variation of from 2 to 20 seconds. The regular Rockwell "Brale" penetrator—a 120-degree cone with spherical tip of 0.2 millimeter radius—was found to be the most satisfactory with regard to practicability and sensitivity.

—STEEL, 9-12-32

Effect of Specimen Size on Properties of Cast Iron

By A. H. Dierker, bulletin No. 72, engineering experiment station of Ohio State university, Columbus, O., 16 pp., 13 illusts., 1 table.

Gray cast iron, unlike other structural metals, is not a homogeneous mass but consists of countless small graphite flakes imbedded in a metallic matrix, this matrix being essentially similar to a high-carbon pearlitic steel. The mechanical properties of gray cast iron vary not only with variations in composition but in an iron of a given composition these properties vary widely with different size of sections.

To determine the effect of size of specimen on the strength and elastic properties of cast iron a comprehensive test was made of one melt of iron. Specimens tested ranged in size from the standard A.S.T.M. tension bar to one 4 inches square. In general it was found that tensile strength and hardness decreased while deformation per unit stress increased with increasing size of specimen.

—STEEL, 9-12-32

Fundamentals of Copper Brazing Steel Parts

By B. E. Messer, A.S.T.E. (American Society of Tool Engineers) Journal, August, 1932, p. 8, 5 pp., 8 illusts.

Copper brazing, a process for fabricating steel parts in furnaces with controlled reducing atmospheres, was first developed in the General Electric laboratories and in its present form represents the development of several years, and the combination of many operations and principles known previously and applied in other ways. There are four effects that take place to impart strength to a copper brazed joint: The alloying of copper with iron; the alloying of iron with copper; the penetration of copper along the grain boundaries of the steel; and the grain growth across the joint. The accumulation of these effects produces a union that, in most cases, will be as strong as the steel itself.

It may be said that while copper brazing may not be suitable for some classes of work, there are many instances where it far surpasses other ways of making joints, and it makes feasible certain assemblies that would be wholly impracticable by any other means. Economies often have been shown by the process and usually one or more of its features, such as appearance, strength, gas tightness, ductility, good heat conductivity, etc., make it particularly desirable for certain applications.

—STEEL, 9-12-32

Utilizing Temperature in Control of Parts

By Howard D. Matthews in Machine Design, August, 1932, p. 18, 2½ pp., 3 illusts., 3 tables.

Thermostatic metal in the form of bimetal has become an active item in industry only during the last 10 or 15 years. Its action of "bending with the heat" has been of considerable interest to engineers where temperature enters into the action of a machine or influences the quality of its product. During the last 30 years, due to progress in metallurgy, alloys have been developed with low as well as high thermal expansivity and applied to thermostatic bimetal. One of these for example, invar and brass bimetal, is limited to a maximum temperature of 300 degrees Fahr. For higher temperatures brass has been replaced by various alloys containing iron, copper, zinc, chromium and nickel, in a number of percentages and combinations.

As far as endurance is concerned thermal bending of bimetal is much more favorable then mechanical bending. Bimetal is cold rolled in finishing to give it the necessary resilience and strength, but it has no temper in the sense of spring steel. Tests made upon properly designed bimetal units show records over a period of several years with thousands of operations.

—STEEL, 9-12-32

ECONOMIZE *with* SIL-CON STRIP

The use of Republic Sil-con Electrical Strip presents many advantages over the use of sheets where the mechanical set-up permits the use of strip. It is uniform to size and gauge, of uniform temper, free from loose scale, has improved punching qualities that prolong die life, means less scrap loss and results in lower handling costs.

Republic Sil-con Electrical Strip is made in five grades—Armature, Electrical, Special Motor, Special Dynamo and Regular Transformer—with the same electrical properties guaranteed as on sheets of equivalent grades and gauges. Punchings made from strip in these grades will have the required flatness to insure flat stacking of laminations—just the same as punchings made from sheets.

Many manufacturers have tried Sil-con and discovered by experience why it is called Republic's Perfected Electrical Strip. A test is easy to make—two motors on the test block—two transformers side by side—the regular instruments—and then compare the performance figures. A trial order is all that is needed—and you can be the judge.

REPUBLIC STEEL CORPORATION
GENERAL OFFICES YOUNGSTOWN, OHIO

REPUBLIC SIL-CON
PERFECTED ELECTRICAL STEELS...SHEET AND STRIP
PATENTS APPLIED FOR

NEW EQUIPMENT

PRODUCTION FABRICATION TREATMENT FINISHING

Scratch Extensometer Has Wide Application

Baldwin-Southwark Corp., Philadelphia, is marketing a scratch extensometer which, as shown in the accompanying illustration, is hardly larger than a teaspoon and weighs less than an ounce. It records tension-compression strains and also, when tension-compression strain is present, will record shear strain. It is necessary to make a special adaptation when pure shear strain alone is to be recorded.

Baldwin-Southwark scratch extensometer weighs less than ounce

An important advantage of the scratch extensometer is that no multiplying system is needed on each instrument. One photomicroscope such as ordinarily used in metallography or a filar microscope suffices for the measurement of a multitude of targets.

The field for this instrument is almost limitless. Wherever there is variation in strain, or where there are occasional large or small variations with intervening periods of inactivity, this instrument is definitely indicated. From lighter-than-air craft through automobiles and diesel engines to locomotives and ocean ships lies the field of this versatile device.

◆

Develops Pulley Covering to Prevent Belt Slippage

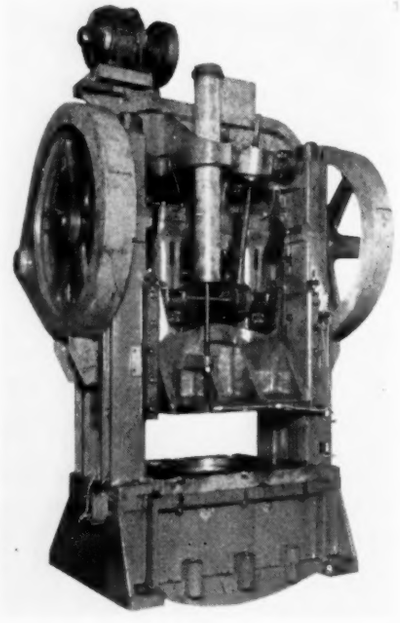
Gripwell Mfg. Co., 105 West Fortieth street, New York, has developed a covering for pulley surfaces to prevent belt slippage. This surfacer is designed to increase frictional engagement between the belt and the pulley face. According to the manufacturer, a microscopic examination of the covering reveals many minute elevations and depressions in its surface. As the surface of the belt is of similar texture, the two mesh, thereby eliminating slippage.

The new product consists of a specially processed, waterproof fabric which is firmly attached to the pulley with a cement manufactured by the company. This cement is a synthetic vegetable and oil compound, characterized by its quick drying ability. The fabric covering may be applied to iron, steel, wood or paper pulleys.

◆

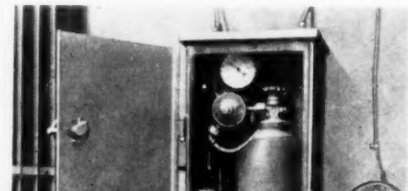
Press Incorporates Safety And Control Features

Niagara Machine & Tool Works, Buffalo, N. Y., recently built a new electrically-controlled double crank press of large size, incorporating new features of safety, convenience and control. This unit, shown in the accompanying illustration, has electromagnetic clutch and brake operating in conjunction. Electric push button control of the slide motion is so arranged that four different methods of operation may be selected and the control locked for the desired method. Tampering with the safety features thereby is prevented.



Niagara electrically-controlled double crank press of large size

The press to which the magnetic clutch and brake are applied is an 8-inch shaft machine of four-piece steel tie rod frame construction. The slide is guided in square gibbing adjustable by tapered steel keys. It is spring counterbalanced, the spring being enclosed completely in steel cylinders. A motor-driven adjustment to the slide is provided.



New Westinghouse inertaire equipment protects transformers

◆

New Inertaire Equipment Aids Transformers

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., recently announced a new device which extends the advantages of inertaire protection to small transformers and offers an improved method of supplying nitrogen to large inertaire power transformers. Operation of transformers with inertaire gas above the oil level prevents oil and insulation deterioration.

As depicted in the illustration shown above, commercial tanks of compressed nitrogen supply the gas space of the transformer by means of a special reducing valve. The usual manhole relief device used with generating type of inertaire for relieving rapidly rising pressures also is employed with this equipment. In this device a micarta diaphragm breaks at pressures varying from eight to 12 pounds per square inch. When slowly rising pressures reach 5

pounds per square inch the breathing regulator functions.

◆

Arbor Presses Have Generous Throat Dimensions

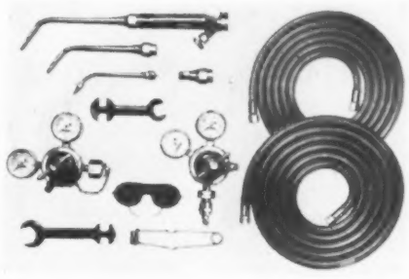
Hannifin Mfg. Co., 621 South Kolmar avenue, Chicago, is marketing a new line of air-operated arbor presses designated as series A-1. The picture below shows this unit which has been designed to meet the need for a direct-acting press with generous throat dimensions. Distance from table to the ram is 11 inches and from the center of the ram to the back of the throat is 8 inches.

Model A-1 is furnished in five sizes to deliver pressures ranging from 565 to 6280 pounds. Any length of stroke may be specified up to 10 inches. The frames in all sizes are made of cast steel, thus assuring the rigidity needed in an open gap press. An important feature is the provision for guiding one ram to prevent turning; also the supporting of the ram in an extra long bearing. These presses may be obtained with either hand or pedal-operated control valves.

◆

Offers Welding Outfit for The Repair Shop

Linde Air Products Co., 30 East Forty-second street, New York, has introduced a new welding outfit adaptable to a wide range of work. Although intended primarily for the auto repair shop, it is appropriate for many other repair jobs.



Welding outfit for repair shop introduced by Linde Air Products Co.

The items making up this outfit, shown herewith, include a type W-17 welding blowpipe with welding heads, friction lighter and wrench, adapter, type W-15 welding head No. 3, oxygen regulator with wrench, 12½ feet of ¼-inch oxygen hose, 12½ feet of ⅜-inch acetylene hose and a pair of No. 8 spectacles.

The development of this outfit makes it possible to secure the complete welding set at moderate cost. A special assortment of supplies to suit the needs of the repair shop also is being offered.

◆

Sliding Gearhead Lathe Has New Features

Reed-Prentice Corp., Worcester, Mass., recently developed a new model sliding gearhead toolroom lathe available in eight and sixteen speed, 14, 16, 18 and 20-inch sizes. New features incorporated in the unit, shown in the illustration at the right include a quick change gearbox with lead screw reverse mechanism, and antifriction end works.

The lead screw reverse mechanism provides for reversing the carriage when feeding or threading without reversing the direction of rotation of the spindle. Reverse lever is located conveniently at the right hand side of the apron and adjustable stops provide for automatically stopping the carriage when either feeding or threading in either direction at any predetermined point.

◆

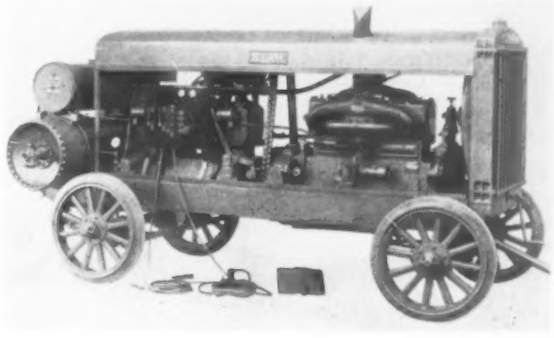
Compressor-Welder Unit Is Announced

Schramm Inc., West Chester, Pa., recently developed a compressor-welder mounted on a spring trailer with artillery wheels, as shown herewith. In this combination the standard engine-driven compressor is used, the engine being separated from the compressor by means of a heavy clutch mechanism. A double-grooved pulley and V-belt drive the welder.

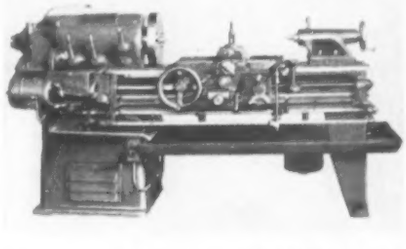
The welder is located on a separate frame or pedestal, directly above the compressor. The unit, in this case, is equipped with a ball bearing type sheave pulley; by releasing the cap screws in the pulley, the welder will remain idle and the compressor can be used alone.

By throwing the clutch of the compressor out of service the welder can be used alone. The engine, however, is large enough to operate the compressor and welder at one and the same time at their full rated capacities. With this unit there is available a welding current that is independent of local power limitations.

COMPRESSOR-welder developed by Schramm Inc. is shown mounted on spring trailer with artillery wheels. Compressor and welder may be operated separately or simultaneously

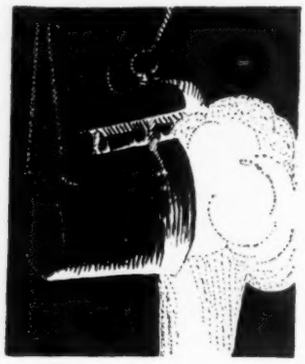


Series A-1 air-operated arbor press developed by Hannifin Mfg. Co.



Reed-Prentice new model sliding gearhead toolroom lathe

There must be good reason....



CUSTOMERS who continue to buy from us for year after year must have good reason.

This "reason" starts back in Phillipsdale where the mix enters the open-hearth furnace. Instead of melting 200 tons in big furnaces, we mix a small, 15-ton batch and watch it like a hawk. This method allows us to produce cleaner steel with uniform analysis. Each order is individually controlled in this way from the open-hearth furnace to the finishing mill.

After the heat is cast in small ingots which solidify rapidly and are very much less segregated than big ingots, these are hot rolled into small billets and are generously cropped. Each heat, after it leaves the furnace, goes through the succeeding processes with a serial number attached.

Rods or strips are shipped to our New York Plant with their identification tags in place for cold working, either drawing or rolling.

As the order goes through, both at Phillipsdale and New York, samples are taken at various stages for inspection and a percentage of each operation is examined microscopically.

All of this requires time and close attention, but our customers prefer to have *our* quality and they continue to come back for more.

May we have the pleasure of serving you when you require one of our products?

●

WASHBURN WIRE CO., PHILLIPSDALE, R. I.
WASHBURN WIRE CO., INC., NEW YORK CITY

WASHBURN

CLEAN, UNIFORM BILLETS—STRIP—RECTANGULAR, ROUND, FLAT RODS
TEMPERED AND UNTEMPERED FLAT AND ROUND HIGH CARBON WIRES

Operations Rise as Market Interest Broadens

Steel Rate Up to 15-16 Per Cent—$300,000,000 Equipment Corp. To Release Railroad Repair Work—100,000-Ton Bridge Award Near—Extend Steel Prices

THE week following Labor day has turned in a two point rise in the steel operating rate, a slight but general expansion of inquiry and bookings, price advances in those scrap grades and districts which have lagged behind the leaders, and structural steel lettings somewhat below the weekly average for the year.

This showing is satisfactory, considering that the industry did not expect a big bulge immediately following the holiday. Sentiment continues strong, with an increase in the country's steel requirements from now on regarded as certain. But the next two weeks are viewed as critical ones, which must record substantial improvement if recent high expectations are realized.

Every operating district but one bettered its production in the week ended Sept. 10, despite the holiday; the exception was Birmingham, where a 25 per cent rate was maintained. Pittsburgh mills stepped up from 13 per cent to 15, Chicago from 12 to 13½, eastern Pennsylvania from 12½ to 13, Youngstown from 13 to 20, Cleveland from 14½ to 23, Buffalo from 11 to 20. The national average in the week ended Sept. 10 thus was 15-16 per cent. Cleveland and eastern Pennsylvania operations will expand this week; Buffalo will be off.

A firming tendency is manifest in steel prices. Some sheet mills have announced fourth quarter prices which rescind recent shading. Rivet makers also are restoring third quarter levels. Woven wire fencing manufacturers have adopted new discounts which supersede the former spring and fall datings. Plate, shape, bar, strip, and bolt and nut prices have generally been extended. This week all of STEEL's composites are unchanged—iron and steel at $29.32, finished steel at $47.50, scrap at $6.96.

The undercurrent of opinion that railroad buying will supply noteworthy impulse to recovery in iron and steel now has the backing of the Railroad Equipment Financing Corp., the $300,000,000 organization set up to act for the Reconstruction Finance Corp. The large fund thus made available may unlock considerable repair work shortly. The Reading now is placing 4000 tons of plates for repairs to 3700 freight cars and 78 locomotives; a Pennsylvania program involves 1500 cars. The report persists that the Baltimore & Ohio will buy 40,000 tons of rails.

Formal award of material for the Golden Gate bridge at San Francisco, now apparently financed, is believed near; a year ago the McClintic-Marshall Corp. was low on 75,000 tons of structurals, Columbia Steel Co. on 6800 tons for approaches, American Cable Co. on 28,000 tons of cable. Structural steel awards the past week aggregated 12,082 tons, with public work continuing to predominate.

Demand for concrete bars is more active, awards for the week, 5877 tons, being substantially above the year's weekly average. Illinois is placing 2000 tons for highway and bridge work.

Inquiry for bars in all important markets is broader. Barrelmakers indicate they will take more sheets. Wire needs have made moderate gains at Chicago, with better agricultural buying foreshadowed. Automobile manufacturers at Detroit continue to ask prices on fourth quarter material, with shipments for new models slated to start late this month. Ford has released some stainless steel, his resumption Sept. 6 probably preventing September automobile production from declining noticeably from August. Greeley Colo., has bought 5000 tons of cast iron pipe from the Colorado Fuel & Iron Co.

Raw materials still are developing more actual business than finished products. Pig iron sales at Cleveland last week reached 11,000 tons, and one steelworks there has committed for 10,000 tons of scrap. At Chicago, recent heavy inquiry for pig iron is being translated into contracts. Shipments of foundry coke are increasing in the wake of better takings of pig iron.

Composite Market Averages

	Sept. 10	Sept. 3	One Month Ago Aug., 1932	Three Months Ago June, 1932	One Year Ago Sept., 1931	Ten Years Ago Sept., 1922
Iron and Steel Composite	$29.32	$29.32	$29.32	$29.54	$31.03	$43.79
Finished Steel Composite	47.50	47.50	47.46	47.64	48.72	58.82
Steelworks Scrap Composite.....	6.96	6.96	6.25	6.62	8.82	17.30

Iron and Steel Composite:—Pig iron billets, slabs, sheet bars, wire rods, tin plate, nails, sheets, plates, shapes, bars. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

COMPARATIVE PRICES OF IRON, STEEL AND COKE

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	Sept. 10, 1932	Aug., 1932	June, 1932	Sept., 1931
Pig Iron				
Bessemer, del., Pittsburgh	$15.76	15.76	15.95	18.26
Basic, valley	14.00	14.00	14.50	17.00
Basic, eastern, del., eastern Pa.	13.75	13.90	14.50	16.65
No. 2 foundry, del. Pittsburgh	15.76	15.76	16.01	18.26
No. 2 foundry, Chicago	15.50	15.50	16.00	17.50
*Southern No. 2, Birmingham	11.00	11.00	11.00	12.00
**No. 2X, Virginia furnace	17.75	17.75	18.00	18.15
**No. 2X, Eastern del. Phila.	14.26	14.51	14.76	17.26
Malleable, valley	14.50	14.50	14.50	17.00
Malleable, Chicago	15.50	15.50	16.00	17.50
Lake Superior, charcoal, del. Chi.	23.04	23.04	23.04	25.54
Gray forge, del. Pittsburgh	15.63	15.63	15.63	17.63
Ferromanganese, del. Pittsburgh	73.24	73.24	74.99	89.79

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

Coke				
Connellsville, furnace, ovens	2.00	2.00	2.00	2.40
Connellsville foundry, ovens	2.75	2.90	3.00	3.25
Semifinished Material				
Sheet bars, open-hearth, Youngs.	26.00	26.00	26.00	29.00
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	29.00
Billets, open-hearth, Pittsburgh	26.00	26.00	26.00	29.00
Wire rods, Pittsburgh	37.00	37.00	37.00	35.00

	Sept. 10, 1932	Aug., 1932	June, 1932	Sept., 1931
Finished Material				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.60
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.91	1.91	1.91	1.89
Iron bars, Chicago	1.65	1.65	1.65	1.70
Shapes, Pittsburgh	1.60	1.60	1.60	1.60
Shapes, Philadelphia	1.75	1.75	1.75	1.76
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.60	1.60
Tank plates, Philadelphia	1.79½	1.79½	1.79½	1.80½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.70	1.70	1.70	1.85
†Sheets, No. 24, hot ann., Pitts.	2.10	2.15	2.20	2.40
Sheets, No. 24, galvan., Pitts.	2.75	2.80	2.85	2.90
Sheets, No. 10 blue anneal., Chi.	1.85	1.85	1.85	2.00
†Sheets, No. 24, hot ann., Chi.	2.25	2.35	2.35	2.55
Sheets, No. 24 galvan., Chi.	2.90	3.00	3.00	3.05
Plain wire, Pittsburgh	2.20	2.20	2.20	2.20
Wire nails, Pittsburgh	1.95	1.95	1.95	1.90
Tin plate, per base box, Pitts.	4.75	4.75	4.75	5.00

*Comparisons are with old classification No. 24 black sheets.

Scrap				
Heavy melting steel, Pitts.	$9.25	8.55	9.00	10.80
Heavy melting steel, eastern Pa.	7.25	6.50	6.25	8.75
Heavy melting steel, Chicago	6.00	5.40	5.60	7.95
No. 1 wrought, eastern Pa.	7.25	6.35	6.25	9.75
No. 1 wrought, Chicago	5.25	4.00	4.75	8.00
Rails for rolling, Chicago	7.25	6.50	7.75	10.50

Sheets

Makers Taking Firmer Stand For Fourth Quarter—Motorcar Requirements Slow To Develop

SHEET PRICES, PAGE 45

Pittsburgh—Sheet mill operations rose several points last week and averaged a few points under 20 per cent as the week closed. The improvement seems centered in operations of some jobbing mills, with galvanized sheet production leading. Flat-rolled material for culvert stock is making a fairly good showing as many states are doing highway work. The market at Detroit appears lifeless. Prices appear more stable, some mills being successful in obtaining 2.20c for black, 2.85c for galvanized and regular prices for cold-rolled sheets.

Philadelphia — Some mills have opened books for fourth quarter at prices officially quoted at the beginning of the third quarter. Until all producers announce their policy, there appears little likelihood of stabilization. A few sizable tonnages are pending.

Buffalo—Sheet mills here failed to open after Labor day, and were down for the remainder of the week, though preparing to resume shortly. The market is slow.

Youngstown, O. — Miscellaneous lines of steel sheet consumption are furnishing the bulk of present demand, which is not showing much if any increase. Partial resumption at the Ford Motor Co.'s main plant has resulted in a few scattered orders. Naming of prices for fourth quarter has had a tendency to clarify the market. The prices are 2.85c, Pittsburgh, on autobody; 2.20c on No. 24 hot-rolled annealed; 2.25c on No. 10 heavy cold rolled; and 2.85c for galvanized. For Washington state auto license plates, awarded to Barde Steel Co., Seattle, 160 tons of sheets are expect to be shipped from Youngstown mills.

Cleveland—Shipments so far this month have increased appreciably over the August rate, as expected. Better inquiry also is noted, but new buying is moderate. Steel barrel manufacturers expect improved demand in the next 30 days, chiefly for alcohol drums for the winter trade, and may place some sheet orders. Refrigerator manufacturers are fairly active; The Fisher Body Co. here continues to operate slowly on Chevrolet models. Some makers have announced prices for fourth quarter, dropping the minimum quotations on present spreads for the various grades. Galvanized under this schedule are 2.85c, base, Pittsburgh; and black, 2.20c. The current market for galvanized shows more firmness, 2.85c being done more frequently.

New York—Pending clarification of prices for fourth quarter the market here continues unsettled. Trading is slow.

Cincinnati — Production of sheet mills in this district is up slightly to meet a broader demand, sales of galvanized and enameling stock being well represented. Automotive demand continues light.

Chicago — Sheet specifications show only minor gains and incoming business has improved but slightly over the light August volume. Demand is more diversified, but large lots from important consumers are lacking. Prices have strengthened moderately and on fourth quarter business producers are naming 2.30c, base, for hot-rolled annealed sheets, and 2.95c on galvanized.

Birmingham, Ala. — Better sheet production has been noted in past few weeks and shipments have kept pace with the output. Roofing sheets are active.

Class I railroads in the United States in the first seven months of 1932 placed in service 2251 new freight cars and 34 new locomotives, compared with 8264 cars and 94 locomotives in the same period of 1931.

CURRENT FINISHED STEEL PRICES

Delivered prices subject to freight surcharge corrected to nearest ½c. Asterisk denotes price change this week

Steel Sheets

HOT ROLLED No. 10

(24 to 48 inches wide)

Pittsburgh, base	1.55c
Gary, Ind. Harbor, base	1.65c
Chicago, delivered	1.70c
New York, delivered	1.90c
Birmingham, base	1.70c
Philadelphia, delivered	1.86c

BLUE ANNEALED NO. 9-10

Pittsburgh, base	1.70c
Chicago, district mills	1.80c
Chicago, delivered	1.85c
Philadelphia, delivered	2.01c
New York, delivered	2.05c
St. Louis, delivered	2.07½c
Birmingham, base	1.85c
San Francisco c.i.f.	2.32½c

HOT ROLLED ANNEALED NO. 24

Pittsburgh, base	2.10c to 2.20c
Gary, Ind. Harbor, base	2.20c to 2.30c
Chicago, delivered	2.20c to 2.35c
New York, delivered	2.45c to 2.55c
Philadelphia, del.	2.41c to 2.55c
Birmingham, base	2.35c
St. Louis, delivered	2.57½c
San Francisco, c.i.f.	2.85c

GALVANIZED NO. 24

Pittsburgh, base	2.75c to 2.85c
Gary, Ind. Harbor, base	2.85c to 2.95c
Chicago, delivered	2.90c to 3.00c
Philadelphia, delivered	3.06c to 3.16c
New York, delivered	3.10c to 3.20c
Birmingham, base	3.00c
St. Louis, delivered	3.22½c
San Francisco, c.i.f.	3.50c

FULL FINISHED NO. 20

Pittsburgh, base	2.80c to 2.90c

FURNITURE

Pittsburgh, No. 10 heavy	2.55c to 2.65c
Pittsburgh, No. 20 light	3.05c to 3.15c

TIN MILL BLACK NO. 28

Pittsburgh, base	2.40c to 2.50c
Gary, base	2.50c to 2.60c
St. Louis, delivered	2.77½c to 2.82½c

HEAVY COLD ROLLED NO. 10

Pittsburgh, base	2.15c to 2.25c
Gary, Ind. Harbor, base	2.25c to 2.35c
Chicago, delivered	2.30c to 2.40c
Philadelphia, delivered	2.46c to 2.56c
New York, delivered	2.60c
St. Louis, delivered	2.62½c

COLD ROLLED NO. 20

Pittsburgh, base	2.65c to 2.75c
Gary, Ind. Harbor, base	2.75c to 2.85c
Chicago, delivered	2.80c to 2.90c
Philadelphia, delivered	2.96c to 3.06c
New York, delivered	3.00c to 3.10c
St. Louis, delivered	3.12½c

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)

Fo.b. mills, 100 lb. keg

Standard wire nails	$1.95
Cement coated nails	1.95
Galvanized nails	3.95

(Per pound)

Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.60c
Annealed fence wire	2.35c
Galvanized wire	2.80c
Woven wire fencing (9-11 ga.)	$55.00
(12½ ga. and lighter)	$60.00

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Chicago and Anderson, Ind., $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, delivered	1.79½c
New York, delivered	1.90c
Boston, delivered	2.02c
Buffalo, delivered	1.85½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Birmingham, Ala., base	1.75c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	2.00c
St. Louis, delivered	1.97½c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, delivered	1.75c
New York, delivered	1.87c
Boston, delivered	2.00½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.10c
Do., wide flange	2.20c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.75c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c
Cleveland, base	1.65c
Philadelphia, delivered	1.91c
New York, delivered	1.95c
Boston, delivered	2.02c
Pittsburgh, cold finish	1.75c
Pittsburgh, forg. qual.	1.85c
San Francisco, c.i.f.	2.10c

RAIL STEEL

Chicago Heights	1.50c
Eastern mills	1.30c to 1.45c

IRON

Chicago, base	1.60c
New York, delivered	1.85c to 1.95c
*Philadelphia, delivered	1.81c to 1.91c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts., billet cut lengths	1.75c
Pitts., stock lengths, mill	1.60c
Chicago, billet	1.60c to 1.75c
Chicago, rail steel	1.45c
Philadelphia, cut lengths	1.96c to 2.06c
Cleveland, cut lengths	1.75c

Cold-Finished Bars, Shafting

10,000 to 19,999 pounds	1.70c
20,000 to 59,999 pounds	1.65c
60,000 to 99,999 pounds	1.60c
100,000 pounds and over	1.57½c

Base Pitts. Cleve., Chi., Buff. up 5c; Detroit up 20c; eastern Mich. up 25c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold Strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Tin and Terne Plate

Per 100-pound box, Pittsburgh

Tin plate, coke base, cont.	$4.75
Tin plate, coke base, stock	3.85
Long ternes, 24, unassorted	2.80c

Gary, Ind., base 10 cents higher

Alloy Steel

Hot Rolled—F.o.b. Mills

Hot rolled; base 2.45c to 2.65c, mills; differentials to various consumers

S.A.E.	Alloy Diff.	4600 .20 to .30 Mo.	
2000	0.25	5100 .80 - 1.10	
2100	0.55	Cr.	0.45
2300	1.50	51.00 Cr.	
2500	2.25	spring	0.20
3100	0.55	6100 bars	1.20
3200	1.35	6100 Spring	0.95
3300	3.80	Cr., Ni., Van.	1.50
3400	3.20	Carbon van.	0.95
4100 .15 to .25		9250 (flats)	0.25
Mo	0.50	9250 (rds., sq.)	0.50

Strip, Hoops, Bands

Hot-rolled strip up to 23 15/16 in. wide, Pitts.	1.45c to 1.50c
Do., Chicago	1.55c to 1.60c
Do., del. Philadelphia	1.76c to 1.81c
Do., del. New York	1.80c to 1.85c
Cooperage hoop, Pitts.	1.55c to 1.60c
Do., Chicago	1.65c to 1.70c
Cold-roll, strip, Pitts., Cleve.	2.00c
Worcester, 3 tons over	2.20c

Rivets, Wrought Washers

Struc., c.l., Pitts.-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. and smaller, Pitts., Chicago, Cleveland	70, 10 and 5 off
Washers, c.l., Pitts. dist.	$6.50 to 6.75 off
Do., Chicago district	7.00 to 7.50 off

Rails, Track Material

Standard rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	23.00 to 25.00
Light rails, 25-45, mills	$32.00
Light rails, Chicago	$34.00
Angle bars, mills	2.75c
Spikes, railroad, mills	2.60c
Spikes, boat, barge, Pitts.	2.75c
Track bolts, Chicago	3.50c
do., standard, jobbers	73 off list
Tie plates, mills	$37.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 75 off
Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.
Eagle list ..... 75 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 75 off
Tire bolts ..... 60 and 10 off
Stove bolts, 77½, 25 and 10 off in pkgs.; 86 off in bulk.
Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 75 off

HEXAGON CAP SCREWS

Milled ..... 80-25 off
Upset 1 in. diam. and smaller 80-25-10 off

SQUARE HEAD SET SCREWS

Upset, 1 in. and smaller ..... 75-10-10 off
Headless set screws ..... 75-10 off
Upset, larger than 1 in. ..... 75-10 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh	$2.50
Do., less carloads, 5 kegs or over	$2.90
Less than 5 kegs	$3.05
Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Steel sheet piling, Pitts.	1.90c

Bars

Restricted Buying Holds Market Back but Prices Retain Strength —Auto and Farm Needs Loom

BAR PRICES, PAGE 45

Chicago—A moderate broadening is noted in steel bar specifications, unaccompanied, however, by large orders. Requirements of the automotive and farm implement industries, currently at a low ebb, are expected to be heavier soon. Orders from the latter have been slightly more active recently in some directions but little change is noted in automotive specifications. Bar iron demand recently has shown a slight upturn, comparable to that in steel bars. The 1.70c, Chicago, price on the latter is expected to be continued into fourth quarter. Rail steel bars remain 1.50c and bar iron 1.60c.

Philadelphia—Commercial steel bars are quiet but steady at 1.60c, Pittsburgh, a price likely to be reaffirmed for fourth quarter. Common iron bars are easy at 1.50c to 1.60c, Pittsburgh, with a slight improvement in volume noted.

Pittsburgh—Carbon steel bar demand continues lightest of heavy finished steel products but there is a growing improvement in alloy bar sales. A restraining factor lies in the fact that the most of the latter are for small lots. Bar sellers are reported actively considering a change in quantity extras for carbon steel bars with the same changes for plates and strucural material. Coverage for fourth quarter carbon steel bars may be obtained at the present market of 1.60c, Pittsburgh.

Youngstown, O.—The largest single order for concrete reinforcing bars has just come to Truscon Steel Co., 1000 tons, for use in the Grand Central parkway, Brooklyn, N. Y. There is a gradual gain in sales to miscellaneous consumers of common steel bars but the total volume so far is not large. Quotations are firm at current levels.

Cleveland—Inquiries for commercial steel bars have broadened appreciably. Small manufacturers, especially, appear interested in the market and some inquiries also have been received from a few large users. The leading consumers, the automotive industry and railroads, however, have not expanded purchases. Some tentative inquiries for bar steel have been received from railroads and sellers believe something tangible is in prospect from railroads within a few weeks. Small, miscellaneous orders have improved slightly. Bars are firm at 1.65c, base, Cleveland.

Tin Plate Specifications Better; Operations Steady

Tin Plate Prices, Page 45

New York—Low inventories at canmakers' plants and a better tomato crop than anticipated have resulted in improved specifications for tin plate. The official base price is unchanged at $4.75, Pittsburgh, although irregularities continue to exist. Talk of new prices for fourth quarter apparently has subsided.

Pittsburgh—Tin plate mill operations continue at 35 per cent. As present production is for canners' use late this fall, it is felt that the peak of tin plate production for this year has been passed. It is indicated there will be no early revision in the official base price of $4.75.

Cold-Finished Bars Show No Increase in Buying

Cold Finished Prices, Page 45

Pittsburgh — Specifications and shipments of cold-finished steel bars and shafting have not improved in September over the low point of August. Trade sentiment has not been dampened, however, and confidently expects improvement the latter part of this month. Cold bar finishers are falling in line with the recent quantity extra revision. The base price of 1.70c is continued.

Plates

Tank Awards Slow—Requirements Still of Routine Character —Projects Awaiting Financing

PLATE PRICES, PAGE 45

Chicago—Inquiries for fabricated plates continue light. Oil tank construction is slow, no new inquiries appearing, while action on several proposed municipal water tanks is deferred pending financial aid from the Reconstruction Finance Corp. Plate requirements of the railroads for car repair work continue light but are expected to be heavier later in the year. Plates generally are 1.70c, Chicago.

New York—Plate prices are fairly steady. Sales are light.

Philadelphia—A leading maker in this district has reaffirmed 1.70c, Coatesville, Pa., on plates for fourth quarter. Other mills are expected to take similar action. Apart from inquiry from the Reading Co. for car repairs, little outstanding plate business is noted. Miscellaneous volume is sustained.

Cleveland—Some platemakers report a moderate improvement in specifications since the first of the month, and a broader interest as reflected in inquiries. The price is firm at 1.60c, base, Pittsburgh.

Pittsburgh — Dravo Contracting Co., Pittsburgh, is low on two barges for the war department, Washington, and if awarded the contract probably will construct the barges at Wilmington, Del. The Memphis, Tenn., engineers close bids Sept. 15 on 14 pipe pontoons, which will take about 260 tons of plates and shapes. Some gasoline barges for Shell interests are reported active. General plate demand still is confined to routine purchases. The base, 1.60c, Pittsburgh, will prevail generally for the fourth quarter.

Contracts Placed

400 tons boiler equipment for Los Angeles, specification 2826, to unnamed interest.

100 tons, boiler for Queens of Angels hospital, Los Angeles, to unnamed interest.

Unstated tonnage, standpipe, Carlisle, Pa., to Pittsburgh-Des Moines Steel Co., Pittsburgh.

Contracts Pending

260 tons, 14 pipe pontoons, United States engineers, Memphis, Tenn.; bids Sept. 15.

150 tons, two barges, war department, Washington; Dravo Contracting Co., Wilmington, Del., low.

Unstated tonnage, 500,000 gallon elevated steel tanks, Fargo, N. Dak.; bids in.

Utah Vanadium Corp., of which R. J. Evans, Salt Lake City, Utah, is president, has about 45,000 tons of 3/16 per cent vanadium ore in its Henry mountain property, according to a recent survey.

Railroads

Corporation To Aid Financing Is Completed—Reading Road Buying For Car Repairs

TRACK MATERIAL PRICE, PAGE 45

New York—An important step toward revival of railroad buying of steel is seen in completion of the organization of the Railroad Equipment Financing Corp. to provide a practical means of making a $300,000,000 credit from the Reconstruction Finance Corp. available to railroads for rehabilitation. It is believed all equipment buying by railroads will be financed, until the present emergency is past, through the new corporation, headquarters for which have been established at Eddystone, Pa.

Monsanto Chemical Works, St. Louis, is inquiring for six cars and the navy is reported to be inquiring for one helium tank car.

Philadelphiha—Baltimore & Ohio railroad contemplates the purchase of 40,000 tons of rails, according to reliable reports here. Its affiliated railroad, the Reading, will require about 4000 tons of steel for repairs to 3700 gondolas and 78 locomotives. Some orders have already been placed. The Reading program is to cover a period of three months.

Pittsburgh—The car repair program of the Reading Co. has already taken form and last week a round tonnage of car plates was inquired for. This program involves repairs to a large number of cars and locomotives. Other railroads are buying steel lightly at quoted levels on track accessories and car shapes. Word is awaited from Washington on the proposal submitted by the Pennsylvania railroad to repair 1500 freight cars.

Cleveland—Pending a decision at Washington on the interest rate to be charged railroads for loans, heavy orders for rails, cars or locomotives are not expected. The railroads are not disposed to pay 5½ per cent interest, for which they have been asked. In the meantime, however, railroads are preparing to broaden purchases for repair purposes and are beginning to issue definite inquiries. A much larger volume of business is expected to develop the latter part of this month.

Chicago—Occasional increases are noted in car repair work, while releases of track material and various steel products are slow and generally unchanged. The Chicago, Burlington & Quincy railroad was scheduled to re-employ 550 men at its Aurora, Ill., shops, closed since July 31. Additional gains in repair work are anticipated with traffic on western roads tending upward. A committee of railroad officials met here during the past week to draw up a notice of wage revisions to be submitted to unions. It is understood that a 20 per cent cut from the level prevailing before the 10 per cent reduction is contemplated.

Bolt, Nut Buying Light; Same Price Last Quarter

Bolts, Nuts, Rivets Prices, Page 45

Pittsburgh—The bolt and nut discount of 75 off list has been formally announced for fourth quarter. Present specifications have not improved greatly but one bolt and nut maker showed a gain last week in orders from railroads. Jobbers are slow in being persuaded to increase inventories. Rivet prices for fourth quarter have been announced at 2.25c, Pittsburgh, for large rivets and 70, 10 and 5 off for small. Books are open for contracts.

New York—Prices on bolts and nuts are being reaffirmed for fourth quarter at 75 off, with 2.25c, Pittsburgh, named for rivets. Current buying is light but considerable work is planned, depending on government loans.

Cleveland—An effort is being made to strengthen prices on rivets for fourth quarter, with indications that some concessions recently noted will be eliminated. Leading producers generally have been holding to 2.25c, base, Pittsburgh, and Cleveland for ½-inch and larger. Champion Rivet Co., Cleveland, has been awarded 15,600 pounds of cone and round head rivets, boiler quality, for the United States engineer at Memphis, Tenn.

Chicago—Specifications for bolts, nuts and rivets are slow to improve despite occasional gains in inquiries. Jobbers are not disposed to increase stocks before a definite upturn in demand. Consumers also maintain low inventories and have shown but slight change in consumption. Railroads and structural shops continue light buyers. Prices are unchanged on fourth quarter contracts which are to be issued shortly, continuing 75 off for bolts and nuts, and 2.35c, Chicago, for structural rivets.

Wire Pins Hope of Gain On Agricultural Needs

Wire Prices, Page 45

Chicago—Moderate gains continue in specifications for wire products. Demand is well diversified except that automotive requirements are light and unchanged. Some increase in needs of this industry is looked for shortly, however. Jobbers are ordering principally for present needs and have made slight additions to stocks. Producers look for further gains in shipments to agricultural districts over the next four to six weeks. Fourth quarter inquiry is quiet and producers have little occasion to quote prices for that period, but present levels of $2 in carloads for wire nails and 2.25c for plain wire are expected to be continued.

Worcester, Mass.—Wire demand is slightly improved, although manufacturers' wire is below normal activity. Jobbers in some instances are buying more, and consumer demand is expected to show seasonal improvement later this month. Prices are steady and unchanged.

New York—A leading wiremaker has opened books for fourth quarter at current prices. Plain bright wire is 2.20c, Pittsburgh, and wire nails $1.95c, Pittsburgh. Some future contracting has been done, with current specifications light.

Pittsburgh—Special dating terms to apply immediately on all shipments of woven wire fencing involving 500 rods or more, have been announced. These involve 4 per cent discount for payment within ten days from invoice; 3 per cent for 30 days; 2 per cent for 60 days; 1 per cent for 90 days; with net due within 120 days. Terms on less than 500 rod lots will be 60 - 2 per cent - 10. Special dating terms will replace special seasonal announcements which had been made previously. Demand for nails, wire and other wire products is better, as was expected for this month. Prices continue firm at $1.95 for nails and 2.20c for plain wire, reaffirmation for fourth quarter having been made and books opened for that delivery. Galvanizing extra on nails has been reduced from $2 to $1.75.

Cleveland—American Steel & Wire Co. here started its wire rod mill last week; the mill will be down this week, but will resume again next week, according to present schedule. This reflects a slightly better demand for wire. Shipments of fencing material to rural areas have improved.

Structural Shapes

Awards Lighter — Forty Eastern Federal Jobs, Needing 11,000 Tons, Up for Action Sept. 27—Golden Gate Bridge Bond Issue to Release Large Tonnage

STRUCTURAL SHAPE PRICES, PAGE 45

New York—Structural awards are light and fresh inquiry is slower; About 6000 tons are pending for state bridges in New York and New Jersey. While a heavy volume of work is being planned, much depends on financing. Plain material continues 1.70c, eastern mill.

Boston—Structural steel buying has declined. Pending requirements are not large, mainly for government work. War department has approved plans for the Saugus river bridge, Lynn and Revere, but the job is not active.

Philadelphia—Government and state work continues to dominate the local market, although two private projects, totaling about 1100 tons, have been placed. Sept. 27 is expected to be an unusually active day as bids on close to 40 postoffices and other federal projects, requiring more than 11,000 tons, will opened. As indicated last week, American Bridge Co. will fabricate 18,000 tons for the local postoffice. Plain shapes are likely to be reaffirmed at 1.70c, Coatesville, Pa., for fourth quarter.

Pittsburgh—Several steel sheet piling jobs are becoming active, two of which are in the South. Wheeling Structural Steel Co. has been awarded 850 tons for the Lexington, Ky., postoffice, and the American Bridge Co. has taken some highway bridges in New Mexico. Plain material may be obtained at an unchanged price of 1.60c for fourth quarter.

Cleveland—The Cleveland postoffice superstructure, requiring approximately 9000 tons of shapes, is expected out for bids the latter part of this month, plans having been approved several weeks ago. Current projects are small; general contractors are slow to close for some jobs placed recently.

Chicago—Practically all recent structural awards and inquiries consist of public or semipublic work. Recent orders are made up entirely of small lots with bridge work predominating .

San Francisco—Directors of the Golden Gate bridge, San Francisco, have arranged to sell bonds for $35,000,000 to a syndicate headed by the Bank of America of San Francisco, withdrawing their petition for a federal loan. McClintic-Marshall Corp., as reported in STEEL, Aug. 22, a year ago, tentatively was awarded 75,000 tons of structural shapes for main structure; Columbia Steel Co. 6800 tons for the approaches; and American Cable Co. 28,000 tons of wire and cables. Work is expected to be started within 90 days.

Birmingham, Ala.—Fequent orders have built up fairly good backlogs on which fabricating shops are operating at 50 per cent. Additional business is in sight, including several highway bridges.

Contracts Placed

2050 tons, highway bridges, Nebraska, to Omaha Steel Works, Omaha, Nebr.

944 tons, medical school, University of California, San Francisco, to Judson-Pacific Co., San Francisco.

850 tons, postoffice, Jackson, Miss., to Ingalls Iron Works Co., Birmingham, Ala.

850 tons, postoffice, Lexington, Ky., to Wheeling Structural Steel Co., Wheeling, W. Va.

700 tons, Federal Reserve Bank building, Philadelphia, to Lehigh Structural Steel Co., Allentown, Pa., through Irwin & Leighton, general contractors, Philadelphia.

525 tons, bridge, Harvey, La., for Missouri Pacific railroad, to Mt. Vernon Bridge Co., Mt Vernon, O.

500 tons, bridge, West Virginia, to Independent Bridge Co., Pittsburgh.

500 tons, state bridge, Wyoming county, Pennsylvania, to McClintic-Marshall Corp., Bethlehem, Pa.

400 tons, postoffices, Danville and Durham, N. C., to Shippers Carline Co., Milton, Pa.

375 tons, crane runway, Pennsylvania railroad, Enola, Pa., awarded through Ferguson & Edmondson, Pittsburgh, to American Bridge Co., Philadelphia.

340 tons, addition to state hospital, Beacon, N. Y., to Bethlehem Fabricators Inc., Bethlehem, Pa.

311 tons, 170 tons for Andrew county, Missouri, state bridge; and 140 tons for Pettis county, Missouri, state bridge; to St. Joseph Structural Steel Co., St. Joseph, Mo.

300 tons, highway bridge, Malaga, N. Mex., to American Bridge Co., Pittsburgh.

300 tons, intake gates and penstock, Hawks Nest, W. Va., for New Kanawha Power Co., to Virginia Bridge & Iron Co., Roanoke, Va.

275 tons, Sixtieth street subway, Kenosha, Wis., for Chicago Northwestern railroad, to American Bridge Co., Pittsburgh.

260 tons, Chicago & North Western railroad bridge, Wiscona, Wis., to McClintic-Marshall Corp., Bethlehem, Pa.

251 tons, state bridge, Presido county, Texas, to Southern Steel Co., San Antonio, Tex.; Allhands & Davis, Dallas, contractors.

250 tons, Trinity church, Bloomington, Ill., to Mississippi Valley Structural Steel Co., Decatur, Ill.

250 tons, overhead crossing, Mandan, N. Mex., to Minneapolis-Moline Power Implement Co., Minneapolis.

225 tons, shapes and plates, coal washing plant, Pittsburg & Midway Coal Mining Co., Mineral, Kans., to McNally-Pittsburg Mfg. Corp., Pittsburg, Kans.

185 tons, Taft school, Barber & Ross Inc., Washington, through Prescott-White Corp., New York, contractor.

175 tons, veterans hospital buildings, Fayetteville, Ark., to Decatur Iron & Steel Co., Decatur, Ala.; M. E. Gillioz, Monett, Mo., general contractor.

155 tons, highway bridge, Lafayette county, Missouri, to Mississippi Valley Structural Steel Co., Decatur, Ill.

155 tons, bridge, Crawford county, Pennsylvania, to McClintic-Marshall Corp., Bethlehem, Pa.

150 tons, warehouse, Glenshaw Glass Co., Pittsburgh, to Pittsburgh Engineering Foundry & Construction Co., Pittsburgh.

150 tons, 25-ton locomotive crane, Mare Island, Calif., navy yard, to unnamed interest.

132 tons, shapes and bars, postoffice, Fergus Falls, Minn.; 78 tons shapes to American Bridge Co., 54 tons bars to Cowin & Co. Inc., Minneapolis; John Lawritzen Co., Fergus Falls, contractor.

124 tons, bridge, Boundary county, Idaho, to unnamed interest.

100 tons, or more, state hospital, Catonsville, Md., to Maryland Steel Products Co., Baltimore; C. L. Stockhausen Co., Baltimore, contractor.

100 tons, bridge, Garrett county, Maryland, to Pittsburgh-Des Moines Steel Co., Pittsburgh.

100 tons, highway bridge, Indiana, to Pan-American Bridge Co., Newcastle, Ind.

100 tons, school, Peekskill, N. Y., to Port Chester Iron Works, Port Chester, N. Y.

Unstated tonnage, hauling cradle, marine railway, navy yard, Washington, to Lehigh Structural Steel Co., Allentown, Pa.

Unstated, postoffice, Bridgeport, Conn., to Lehigh Structural Steel Co., Allentown, Pa., through Coath & Gass, Chicago, contractors.

Awards Compared

	Tons
Awards week ended Sept. 10	**12,082**
Awards, week ended Sept. 3	**25,947**
Awards, week ended Aug. 27	**16,453**
Awards, this week in 1931	**20,184**
Av. weekly awards, 1931	**34,236**
Av. weekly awards, 1932	**15,737**
Av. weekly awards, Aug.	**14,841**
Awards to date, 1931	**1,351,186**
Awards, to date, 1932	**582,252**

Contracts Pending

1900 tons, roller gates and dam, Marmet, W. Va.; Dravo Contracting Co., Pittsburgh, contractor.

1500 tons, state bridges, New York.
1400 tons, state bridge, Florida.
750 tons, postoffice, Omaha, Nebr.
700 tons, steel sheet piling, sea-wall, intercoastal canal, Pensacola, Fla.; bids Sept. 26.
577 tons, postoffice, Reno, Nev.; new bids Sept. 14.
575 tons, state bridge, Lehigh and Northampton counties, route 175, section 11, Pennsylvania; Whitaker & Diehl, Harrisburg, Pa., low on general contract.
500 tons, warehouse, Las Vegas, N. Mex.
475 tons, girls' high school, Philadelphia, general contract to John McShain, Philadelphia; 610 tons of reinforcing bars also will be required.
450 tons, steel sheet piling, lock, intercoastal canal; bids received by New Orleans engineers.
350 tons, race track, San Pablo, Calif.; bids being taken.
255 tons, three bridges, New York, Susqehanna & Western railroad, Rochelle Park, N. J.; I. B. Miller Inc., New York, contractor.
250 tons, postoffice, Billings, Mont.; new bids Sept. 29.
200 tons, postoffice addition, Manchester, N. H.; Ferguson & Largura, Gary, Ind., general contractor.
175 tons, bridge, Erie railroad, Eamsey, N. J.; Senior & Palmer Inc., New York, contractors. Work also includes 50 tons of reinforcing bars.
110 tons, postoffice, Sheboygan, Wis.; James Devault, Canton, O., general contractor.
100 tons, shapes and plates, Panama; bids Sept. 16.
Unstated tonnage, steel sheet piling, sewer, Louisville, Ky.
Unstated tonnage, postoffice, Portland, Me.; bids Oct. 11, total estimated cost, $850,000.
Unstated tonnage, postoffice, Beaumont, Tex.; bids Oct. 10, total estimated cost $680,000.

Stamper Recalls Workers

Geuder, Paeschke & Frey Co., Milwaukee, is recalling more men because of a pickup in orders, especially for kitchen ware and household utensils. Jobbers are buying in larger quantities than for many months, and almost invariably specify immediate delivery, indicating that stocks are depleted.

Ingalls Bookings Are Steady

Ingalls Iron Works, Birmingham, Ala., reports steady production in its drum department, with bookings moderately higher in other departments.

Hardie-Tynes on Good Basis

Hardie-Tynes Mfg. Co., Birmingham, Ala., has recently received contracts for machinery which will insure steady production for some time.

Class I railroads Aug. 1, this year, had 245,749 freight cars in need of repair, 11.5 per cent of the number on line, reports the American Railway association.

Concrete Bars

Larger Tonnage Placed, with Highway and Bridge Work Still Predominating — New York District More Active— Illinois To Award 2000 Tons Shortly—Inquiry Better

REINFORCING BAR PRICES, PAGE 45

New York—Reinforcing bars are more active, and a large tonnage pends for New York and New Jersey state highways and bridges. Awards include 421 tons for state hospital buildings at Thiells, N. Y. Prices are in on 500 tons for the Newark, N. J., postoffice and 530 tons for Pilgrim state hospital buildings.

Boston — Highway and bridge needs account for the bulk of reinforcing steel activity. A Framingham, Mass., contractor has the general contract for a two-mile highway section on the Boston-Worcester route.

Philadelphia—Award of 1500 tons of rods and wire mesh for the Thirtieth street postoffice and 610 tons for the girls' high school here, is expected shortly. The market otherwise is featureless, with prices easy.

Pittsburgh—Price policies of an eastern bar producer and several small reinforcing bar rollers continue to unsettle the market. Some of the larger interests are holding firmly to 1.60c for new billet steel. Mill shipments have been better the past ten days. Jobbers appear to be stocking more reinforcing steel.

Cleveland—Reinforcing bar orders are light. Competition has been keen for 85 tons for the Glenville hospital, for which the A. A. Lane Construction Co., Cleveland, has been awarded the general contract.

Chicago — Reinforcing bars continue active, supported almost entirely, however, by public work. A moderate gain is noted in the number of small private projects. Illinois will award about 2000 tons for road and bridge work on which bids were opened recently, and 1000 tons will be required for a water system at Springfield, Ill. Prices continue fairly steady.

Awards Compared

	Tons
Awards, week ended Sept. 10	5,877
Awards, week ended Sept. 3	4,571
Awards, week ended Aug. 27	2,713
Awards, this week 1931	5,649
Av. weekly awards 1931	6,808
Av. weekly awards, 1932	4,164
Av. weekly awards, Aug	3,292
Awards, to date, 1931	257,562
Awards, to date, 1932	154,058

Contracts Placed

2000 tons, mainly mesh, New York state highways, to American Steel & Wire Co., New York.
1000 tons, mesh, highway, Queens county, New York, to Wickwire Spencer Steel Co., Buffalo; reported last week as placed with another fabricator.
720 tons, United States appraiser's store, Chicago, to Calumet Steel Co., Chicago.
648 tons, state highway work in Los Angeles county, California, to unnamed interest.
450 tons, capitol building, Bismarck, N. Dak., to Laclede Steel Co., St. Louis.
421 tons, state hospital buildings, Thiells, N. Y., to Concrete Steel Co., New York; Clement Contracting Co. Inc., Bronx, N. Y., contractor.
300 tons, 106th regiment armory, Buffalo, to Concrete Steel Co., Buffalo.
255 tons, four state bridges, highway 6, McLennan county, Texas, to Central Texas Iron Works, Waco, Tex.; West & Womack, Fort Worth, Tex., contractors. Mosher Steel & Machinery Co., Dallas, awarded 51 tons of structural steel.
200 tons, state roadwork, near Norristown, Pa., to Kalman Steel Corp., Bethlehem, Pa.
190 tons, overhead crossing state highway, 50th street and Aurora avenue, Seattle, to Northwest Steel Rolling Mills, Seattle.
190 tons, building, California Institute of Technology, Pasadena, Calif., to Blue Diamond Co., Los Angeles.
165 tons, viaduct, South river, Old Bridge, N. J., to unstated Philadelphia district fabricator; Hill Construction Co. contractor.
126 tons, state bridge, Jeff Davis county, Texas, to Southern States Steel Corp., Dallas, Tex.; Allhands & Davis, Dallas, contractors.
112 tons, highway work and bridge, Globe-Showlow, Phoenix, Ariz., to unnamed interest.
100 tons, railroad overhead at Superior, Wis., to Kalman Steel Corp., Bethlehem, Pa.

Contracts Pending

1000 tons, water system, including dam, Springfield, Ill.
610 tons, girls' high school, Philadelphia, general contract awarded to John McShain, Philadelphia.
530 tons, building, Pilgrim hospital, New York; Babor-Comeau & Co. Inc., low.

200 tons, overhead crossing, Wilson avenue, Chicago.
175 tons, bridge, outer drive, Chicago.
150 tons, highway, Amityville, N. Y.

Interstate Drop Forge Co. Reports Marked Upturn

Interstate Drop Forge Co., Milwaukee, reports a continuance of an exceptional upturn in business first experienced during the first half of August. Ordinarily the poorest month of the year, August proved to be the highest sales period so far this year. The concern serves more than 40 varieties of manufacturing plants all over the country, including automotive equipment, tractors, farm machinery, washing machines, electrical refrigerators, golf clubs, baby carriages, etc.

Metal Tool Exports Varied

Shipments of metalworking machines from the United States in July included three internal grinding machines, 30 tool grinding, cutter grinding and universal grinding machines; other metal grinding machines valued at $16,035, forging machinery valued at $61,668, sheet and plateworking machines valued at $128,992, rolling mill machinery to the value of $9247, foundry and molding equipment valued at $115,822, chucks for machine tools valued at $3544, pipe and thread cutters and dies, machine operated, valued at $45,308.

Lathes Lead July Exports

July exports of industrial machinery from the United States, according to the department of commerce, included 19 engine lathes valued at $59,023, one turret lathe at $560, seven gear cutting machines at $23,525, eight vertical drilling machines at $2283, seven radial drilling machines at $17,330, two planers and shapers at $6438, five surface grinding machines at $16,836.

Abrasive Sales Gain

Wisconsin Abrasive Co., Milwaukee, has increased its payroll and working hours to meet a substantial improvement in demand for grinding wheels. Orders have come mainly from other centers, although local inquiry and sales are becoming noticeable, according to W. T. Hardy, president.

Pipe

Cast Firmer—5000 Tons Placed For Colorado City—Orders For Steel Pipe Continue Light

PIPE PRICES, PAGE 66

Chicago—Cast iron pipe orders and inquiries for small lots retain recent gains while the absence of large tonnages leaves activity at a low rate. Producers derive some encouragement from the fairly large volume of prospective work and recent strengthening in prices. Prices at $32 to $33, Birmingham, base on 6-inch and larger pipe, and $36 to $37, Birmingham, for 4-inch pipe, are more generally observed.

Boston—Cast pipe prices are firm on the small volume being placed in this territory. Several hundred tons for Torrington, Conn., held up for some time, may be released soon. Utilities are buying little.

New York—Cast pipe buying and inquiry is light. The Florence, N. J., foundry is low on approximately 500 tons for Baltimore. Cast prices are firm, better than $30, foundry, being done on some of the small orders booked recently. Bethlehem Steel Co. has been awarded steel pipe for the department of labor and interstate commerce building, Washington.

Pittsburgh—New standard steel pipe discounts have had a clarifying effect. However, little tonnage is in the market. Pipemakers do not expect much improvement the remainder of the year.

Cleveland—Award of 70 tons of steel pipe for the Cleveland underground auditorium represented the largest order during the week. Some jobbers have been replenishing supplies. Other steel pipe manufacturers have adopted the new schedule of discounts announced in STEEL last week. No revision is expected at this time in iron pipe discounts.

Birmingham, Ala.—Cast pipe inquiries are light and backlogs are being worked out steadily. Expectations for federal financing still are holding back demand.

Denver—Award of 5000 tons of 20-inch cast pipe to the Colorado Fuel & Iron Co., for Greeley, Colo., will give 65 employes of the company's pipe mill five months' employment. The Greeley city engineer stated that the company's bid, $147,000, was the lowest of which he has any record, for pipe of the same quality.

Cast Pipe Placed

5000 tons, 11.1 miles of 20-inch, Greeley, Colo., to Colorado Fuel & Iron Co., Denver.
1175 tons, 4 to 20-inch, for Washington, to R. D. Wood & Co., Florence, N. J.; bids Aug. 11.
330 tons, 6-inch, class B, Panama to American Cast Iron Pipe Co., Birmingham, Ala.; total $10,400, delivered.
208 tons, water pipe specials, for Washington, to Lynchburg Pipe & Foundry Co., Lynchburg, Va., $54.50 a ton, delivered.
180 tons, 6 and 8-inch, Scarsdale and Kinderhook, N. Y., to Donaldson Iron Works, Emaus, Pa.
100 tons, various sizes, Ottumwa, Iowa, filter plant, to American Cast Iron Pipe Co., Birmingham, Ala.

Steel Pipe Placed

Unstated, 10 miles, 36-inch, for Montreal, Que., to British firm, whose total bid was $33,000 less than lowest Canadian bid.

Cast Pipe Pending

5000 tons, boiler tubes, Mare Island, Calif., navy yard. Bids Sept. 20.
500 tons, Baltimore; R. D. Wood & Co., Florence, N. J., reported low.
300 to 900 tons, 4 to 12-inch class 150, San Clemente, Calif., C. G. Claussen & Co., San Francisco, low.
100 tons, 8-inch, naval training school, Melville, R. I.; bids in.

Steel Pipe Pending

Unstated tonnage, 10 steel dredge pontoons, each 40 feet long; four 48 feet long and 24 sections, about 1200 feet 32-inch i.d. steel pontoon pipe, United States engineer, Memphis, Tenn.; bids Sept. 15.

Ore Receipts Larger

Iron Ore Prices, Page 55

Cleveland—Receipts of Lake Superior iron ore at Lake Erie ports in August, 619,342 tons, were 148,922 tons larger than in July. In August, 1931 the receipts for the month were 3,288,915 tons. The dock balance Sept. 1 was 5,267,689 tons, compared with 5,685,751 tons a year ago. The August receipts at other than Lake Erie ports were 87,508 tons. No ore has been received for the season to Sept. 1 at Gary, Ind., and none at South Chicago for shipment to interior furnaces.

Fights Lackawanna Appraisal

Bethlehem Steel Co. is expected to take court action to prevent an increase in the appraisal of its Lackawanna plant at Buffalo from $21,500,000 to $34,960,408, for tax purposes.

Strip

More Activity Shown but Orders Are Small—No Change Expected In Fourth Quarter Prices

STRIP PRICES, PAGE 45

Pittsburgh — One strip mill received several good carload specifications the middle of last week and the market was more active than for several weeks. Mill operations were increased slightly. A few motor car releases for stainless strip came through last week and miscellaneous demand appears to be gaining. Following last week's price announcement, 1.45c for hot-rolled and 2.00c for cold-rolled are to be applied on such fourth quarter inquiry as develops.

Philadelphia—While some sellers have not yet acted on fourth quarter quotations, it is believed they will follow the lead of 1.45c, Pittsburgh, on hot strip in carlots for fourth quarter and 2.00c for cold-rolled. Sellers are looking for some increase in demand.

Cleveland—Inquiry for strip is a little better. The number of orders has increased but tonnage has not been built up appreciably. Carload lots still are the rule. While nothing special has developed from automotive stampers in this district, reports persist of early upturn in automotive specifications from Detroit. Cold-rolled strip usually is 2.00c, base, Cleveland; hot rolled prices are steady at 1.45c and 1.50c, the latter to small users.

Chicago—Strip steel remains dull despite a small increase in specifications from miscellaneous users. Automotive interests are furnishing little business, but inquiries have been received in connection with new models and heavier demand is anticipated. Fourth quarter inquiry otherwise is quiet with current prices of 1.55c to 1.60c, Chicago, for hot strip being continued. Cold strip is 2.00c, Pittsburgh-Cleveland.

Steel Operating Rate Up 2 Points to 15.5 Per Cent

Youngstown, O.—Steel plant operations in this district for the week ended Sept. 10 were up seven points, from 13 to 20, and will hold at or slightly above that level for the present week. One idle open-hearth plant may resume in a few days. Carnegie Steel Co. continues activity of its Valley plants. Nineteen of 83 open hearths are melting, compared with 18 a week ago.

Pittsburgh—Steel ingot capacity was up two points last week to 15 per cent engaged. For this week the rate may develop a one or two-point gain. Two of the leading mills here were running at between 15 and 16 per cent last week, a rate not attained by some of the smaller producers. Blast furnace schedules are unchanged from last week with 9 of 54 steelworks furnaces operating.

Operations, week ended Sept. 10	**15.5**
Operations, week ended Sept. 3	**13.5**
Operations, week ended Aug. 28	**14.5**
Operations, one year ago	**28**
High for 1932, Feb. 6	**28.5**
Low for 1932—July 9	**12**

Philadelphia—Steelmaking operations are slightly higher at 12 to 14 per cent, with little further improvement in immediate sight. Most producers, however, look for a fair increase by the end of the month.

Buffalo—After rising to a high of 24 per cent for one day last week, steelworks output of ingots is due for sharp curtailment this week. The 24 per cent rate was quickly followed by a drop to 19, at which the week was concluded. This week four open hearths are scheduled, representing 11 per cent of capacity.

Cleveland—Steel ingot production here for the week ended Sept. 10 was at 23 per cent. American Steel & Wire Co. lighted three open hearths Sept. 6. Otis Steel Co. continued with two all week. Corrigan, McKinney Steel Co, which previously had on four, dropped to three units for the week. The Corrigan, McKinney company plans to go back to four the current week, and may put on a fifth unit. The others are scheduled to continue as in the past week. Operations for the current week, therefore, will be at least 26 per cent and possibly 29 per cent.

Chicago — Ingot production increased moderately to 13-14 per cent during the past week, compared with the 12 per cent rate prevailing the preceding week. Prospective schedules for the current week are indefinite, but the recent rate is expected to hold. Blast furnace operations have been increased to eight active stacks of the 36 in the district with the resumption of one of the Gary stacks which had been banked for a short time. Finishing mill operations generally are steady.

Birmingham, Ala. — With eight open-hearth furnaces on, steelmaking operations are steady at 25 per cent. Other open hearths are being prepared for production.

Warehouse Sales Gain In Volume and Variety

Warehouse Prices, Page 66

New York—Demand for warehouse steel has broadened slightly with some gain in volume. Prices are better maintained and while shading continues in some quarters, price cutting is less acute. Several New York city departments will close Sept. 16 on fourth quarter needs of bolts, nuts, rivets and other light products, taking less volume than usual, including about 15 tons of spikes and nails.

Chicago—Sales were quiet over the holiday period but are expected to improve this month, based on present indications. Prices are unchanged.

Philadelphia—Local jobbers have started slowly, but are confident of better activity by the end of the month. Prices are unchanged.

Pittsburgh—Jobbers find September is holding gains in tonnage established in August. Last week brought better sales and inquiry for sheets and tin plate. Quoted prices are holding.

Detroit—Warehouse business here in iron and steel is running a little ahead of the comparable period of August. Whether it will be sustained for the entire month is not forecast, but the outlook is more encouraging. Prices generally are unchanged.

Cincinnati—Jobbers were unable, during the past week, to discern any trend in sales. Prices are unchanged.

St. Louis—The month has started out well for iron and steel warehouse interests. Demand generally has broadened, with building materials showing more activity than earlier in the summer. Some fair orders for track supplies, notably bolts and nuts, were reported by two leading interests.

International Steel & Iron Co., Evansville, Ind., now in receivership, reports assets of $970,558 and liabilities of $199,319.

HIGH AND LOW CARBON STRIP STEEL

HOT AND COLD ROLLED -- *in all tempers*

The rapid growth and development of modern forming and stamping practice has widened the scope and created new demands for strip steel in many branches of industry.

Since 1897 we have specialized in high quality Hot and Cold Rolled Strip Steel, which constantly met the increasing requirements in this field.

A wide range of high and low carbon strip steel in all tempers—widths from ¾" to 24"—hot and cold rolled —coiled or cut to lengths that best suit your needs.

Also Bright Cold Rolled ALLEGHENY STAINLESS STEELS in all grades. Excellent for drawing and forming. Resists corrosion, may be welded and soldered.

Save with Steel

WEST LEECHBURG STEEL COMPANY

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PHILADELPHIA NEWARK TOLEDO

Edgcomb Steel Co. Edgcomb Steel Corp. Dean Higgins & Co.

Warehouse Stocks of Cold Rolled Strip Steel Are Carried by
Edgcomb Steel Co., Philadelphia
Edgcomb Steel Corp., Newark
Jos. T. Ryerson & Son, Chicago

RAW MATERIAL PRICES

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago, furnace	$15.50
Pittsburgh, dist. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.00
Philadelphia, delivered	13.76 to 14.26
Virginia furnace	17.25
Granite City, Ill., fur.	16.50 to 17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	18.91 to 19.91
Buff., all-rail, Brooklyn	18.90
Buff., all-rail, Newark	17.28
Ala., Bir. fur., local del.	11.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. L.	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock del.	15.00
Alabama, New York dock	15.50
Ala., Boston dock del.	15.75 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	16.50
Buff., all-rail, Brooklyn	19.40
Buffalo, all-rail, Newark	17.78
Buff., all-rail, Boston	19.91 to 20.91
Virginia furnace	17.75
Eastern, del. Phila.	14.26 to 14.76

FOUNDRY, NO. 1X

Buffalo fur., local del.	17.50
Eastern, del. Phila.	14.76 to 15.26

MALLEABLE

Valley furnace	14.50 to 15.00
Cleveland fur., local del.	15.00
Pittsburgh dis. fur.	15.00
Pittsburgh, delivered	15.63 to 16.13
Chicago, furnace	15.50
Buffalo fur., local del.	16.50
Eastern Penna., delivered	16.13 to 19.41
Granite City, Ill., fur.	16.50 to 17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	14.50 to 15.00
Pittsburgh, delivered	15.13 to 16.13
Eastern Penn., del.	13.50 to 14.00
Buffalo fur., local del.	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	14.00

BESSEMER

Valley furnace	14.50 to 15.00
Pittsburgh, furnace	15.00
Pittsburgh, delivered	15.63 to 16.13

LOW PHOS.

Valley fur., standard	25.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	14.00
Pittsburgh district fur.	15.00
Pittsburgh, delivered	15.63 to 16.13

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$18; 7—$18.50; 8—$18.75; 9—$19; 10—$19.50; 11—$20; 12—$20.50; 13—$21.50; 14—$22.50; 15—$23; 16—$24; 17—$25.50.

Pittsburgh and Buffalo furnace: 7 to 10—$19.50; 15—$23 to $24.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents: 10—$20.50; 11—$21; 12—$21.50; 13—$22.50; 14—$23.50; 15—$24; 16—$25; 17—$26.50.

Coke

Prices Per Net Ton

BEEHIVE OVENS

Connellsville furnace	$2.00 to 2.15
Connellsville foundry	2.75 to 4.25
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

BY-PRODUCT FOUNDRY

Newark, N. J., del.	8.21 to 8.81
Chicago, ovens, outside del.	7.00
Chicago, del.	7.75
New England, del.	10.00
St. Louis, del.	7.75
Birmingham, ovens	4.50
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	4.50
Portsmouth, O., ovens Connell., basis	4.50
Buffalo, ovens	7.50 to 8.00
Detroit, ovens	8.00
Philadelphia, del.	8.50

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports	
Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania New Jersey furnaces (Nominal)

Foundry and basic, 56-63%, contract	7.50
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports (Nominal)

Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.50 to 9.00
North African low phos.	7.50 to 8.50
Swedish basic, 65%	7.50 to 8.00
Swedish low phos.	9.00
Spanish, North African basic, 50 to 60%	7.00 to 8.00
Newfoundland fdy., 55%	8.00
Tungsten, spot, short ton unit, duty paid	$10.25 to 10.50
Chrome ore, 48% gross ton c.i.f.	$17.00 to 18.00

Manganese Ore

(Nominal)

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55%	24 cents
South African, 52%	22 to 23 cents
South African, 49-51%	21 to 22 cents
South African, 44-47%	20 to 21 cents
Indian, 48-50%	22 cents
Brazilian, 46-48%	18 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$35.00
Missouri	35.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 30.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	$35.00
Joliet and East Chicago	47.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

Burned, 9 x 4½ x 2½	$61.50
Unburned, 9 x 4½ x 2½	52.00

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.00
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$26.00
Pittsburgh, bassemer	26.00
Youngstown	26.00
Cleveland	26.00
Philadelphia	31.75
Chicago	28.00
Forging, Chicago	33.00
Forging, Pittsburgh	33.00
Forging, Philadelphia	37.75

SHEET BARS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00
Chicago	28.00

SLABS

Pittsburgh	26.00
Youngstown	26.00
Cleveland	26.00

WIRE RODS

Pittsburgh, Cleveland	$37.00
Chicago	38.00

SKELP

All grades, Pittsburgh	1.50c to 1.60c

Ferroalloys

(In dollars, except Ferrochrome)

Ferromanganese, 78-82%, tidewater, duty paid	$68.00
Ferromanganese, del. Pittsburgh	73.24
Spiegeleisen, 19-20%, domestic fur. spot†	25.00
Ferrosilicon, 50 per cent, freight all., c. l.	77.50
Do, less carload	85.00
Do, 75 per cent	126.00 to 136.00
Silicomang., 2½% carb.	105.00
2% carbon	110.00
1% carbon	115.00
(The above for spot carlots. Contract price $5 a ton less).	
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. lb. con. del.	10.00
Do, for spot delivery	10.50
Ferrotungsten, stand., lb. cont.	1.00 to 1.10
Ferrovanadium, 30-40 per cent, per lb. contained, on analysis	3.05 to 3.30
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis; 18%, $2 unitage	68.00
Ferrophosphorus, electrolytic per ton carload, 23-26% f.o.b. Anniston, Ala.; 24%, $4.25 unitage	91.00
Ferromolybdenum, stand. 50-60 per cent, per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molybdate, lb. cont.	0.80

†Carloads. Differentials apply to quant.

Fluorspar

85 and 5 per cent grade

Washed gravel, f.o.b. Ill., Ky., net ton car loads	$12.00
Washed gravel, import duty paid tide, gross ton	19.50

Pig Iron

Shipments Gaining—Orders In Middle West Increasing—Foundries Are More Active

PIG IRON PRICES, PAGE 55

Pittsburgh—Carload lots of iron measure the extent of sales in the local market. The only recent active inquiry was one for less than 200 tons for the Elliott Co., Jeanette, Pa. Quoted prices for basic, malleable and foundry pig irons are obtained on small tonnage. A nearby merchant stack will be blown in about Sept. 20.

Boston—Sales have droped sharply, although prices are less unsettled. Dutch iron still is available at $14 to $15, delivered. Buffalo furnaces are taking some business at $14 to $15.50, furnace.

New York—Apart from an inquiry for 800 tons of ballast iron, demand continues restricted to small lots. Prices are unchanged, with Buffalo iron moving usually at $14, base, furnace, in car lots for shipment into this territory. Eastern Pennsylvania iron is $13 to $13.50, furnace.

Philadelphia—The market is devoid of outstanding inquiries or orders. Eastern Pennsylvania foundry iron holds at $13 to $13.50, furnace; and basic at $13.50 to $14, delivered, eastern Pennsylvania.

Buffalo—Several lots ranging from 500 tons up have been sold for eastern delivery, over periods of three to six months. Furnace interests here say nothing less than $14.50, base, is being done for eastern shipment. The price for local delivery is firm at $16, base, furnace.

Youngstown, O.—Strengthening of the scrap market has not yet exerted a stimulating effect upon valley pig iron. Small-lot buying of foundry and malleable grades continues the rule here, with quotations unchanged.

Cleveland — Further substantial sales have been made by Cleveland furnace interests, the total for the past week approximating 11,000 tons. One merchant furnace company booked 5000 tons in the three days following Labor day. Still more encouraging to producers is the fact that shipments so far this month are 25 to 30 per cent heavier than the August rate. Shipments are being made to some foundries which had not taken iron for several months. Prices are steady at $15, base, Cleveland, for local delivery.

Cincinnati—Sales following Labor day were confined to small lots. Improvement in the melt is noted. Prices are unchanged.

Chicago—Pig iron is more active, sales and shipments during the past week following the upward trend apparent for some time in inquiries. Orders being placed are for delivery over the balance of the year and indicate expectations of consumers for improved operations. Farm implement manufacturers and automotive interests are expected to be heavier buyers shortly. Inquiries still are lacking in large lots but are more numerous. The market is steady at $15.50, furnace, for No. 2 foundry and malleable.

St. Louis—A steady decrease is noted in the number of small orders for immediate delivery. Foundries report improvement in business, though little is developing from the automotive industry.

Birmingham, Ala.—Shipments are meager. Pipe plants here are curtailing operations, reducing demand for iron.

Toronto, Ont.—The general tone of business in the Canadian market is brightening, with slightly better demand for merchant iron. Melters, however, are holding orders to single car loads. The daily melt averages 18 to 20 per cent.

Production of electricity for public use in the United States in July totaled 6,525,430,000 kilowatt hours, 13 per cent under June, 16 per cent under July, 1931.

Ferromanganese Demand Moderately Improved

Ferroalloy Prices, Page 55

A slight improvement in specifications is reported by ferromanganese sellers, who expect further gains by the end of the month. Prices are unchanged at $68, duty paid, in carlots. Domestic spiegeleisen, 19 to 21 per cent, also is unchanged, holding at $25, furnace.

Semifinished Prices Firm; Billets More Active

Semifinished Prices, Page 55

Firmness in the price of sheet bars, billets and slabs at $26 base, Pittsburgh, is noted and occasional transactions are holding this base. A better demand is shown for forging billets which are firm at $33. These prices will be extended into fourth quarter.

Apollo Steel Co. Resumes

Pittsburgh—Apollo Steel Co. resumed Sept. 6 with orders said to be indicating the best operations in a half year.

Downs Smith Brass & Copper Co., Brooklyn, N. Y., has changed its capitalization from $100,000 to 1250 no par shares.

Coke

Movement To Foundries Continues To Improve — Furnace Grades Quiet—Stocks Low

COKE PRICES, PAGE 55

Pittsburgh—The foundry melt in adjoining districts has improved and by-product foundry coke shipments to these points are gaining. Connellsville furnace coke at $2 per ton is in slow demand. Foundry coke prices are unchanged at $2.75 to $4.25, depending upon grade.

Cincinnati—Reports indicate better specifications for coke. Sales of domestic grades are lower following a spurt last month to cover before a price advance.

Chicago — By-product foundry coke shipments continue to gain slightly, while activity in heating coke is expanding seasonally. Foundry coke continues $7, ovens, for outside delivery. Coal demand for domestic and industrial heating requirements also is increasing. About 26,000 union miners have returned to work in the Illinois fields following settlement of the wage question.

St. Louis—Coke shipments have increased slightly since August. Stocks at ovens now are reported to be no larger than the average for this season.

Birmingham, Ala.—Prospects for better demand for metallurgical coke are brighter. More sales have been reported, the market for by-product foundry coke being firm at $4.50, base, Birmingham.

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Definitely, simply, they offer a sensible approach to your corrosion problems. An acid or alkaline solution in industry is an entirely different problem from an acid or alkaline solution in a research laboratory. Individual peculiarities of the solution in a specific use can so alter its characteristics as to give it entirely unexpected corrosive activities.

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Midvaloy Indicators are the first scientific approach to definitely positioning the corrosive properties of your particular solution. For two years they have been helping others approach alloy problems in a sensible way — they can help you. They enable you, yourself, to eliminate two-thirds of the guesswork in selecting the proper alloy — and enable Midvale to go the last third of the way for you.

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Tell us your particular problem — we will gladly explain how Midvaloy Indicators might operate to simplify it.

Scrap

Better Buying Gives Strength—Prices Generally Strong And Some Advances Are Being Made

Chicago—Scrap sales have been more active recently but although prices are strong no additional advances have been effected. Two independent mills paid $6 for heavy melting steel and dealers now are encountering difficulty in picking up this grade at less than the sales price. Small lots of heavy melting steel have been sold by railroads at considerably higher prices, but on sales to consumers the market continues at a $6 top price. Small scrap consumers continue fairly active in purchases, but large lots are lacking in such buying. Railroads continue to withhold most of accumulated holdings from the market, and offerings generally are light.

Boston—Scrap demand has declined except in cast grades, which

IRON AND STEEL SCRAP PRICES

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	5.50 to 6.00
Boston, dealers	3.75 to 4.00
Buffalo, No. 1	6.50 to 7.00
Buffalo, No. 2	5.00 to 5.50
Chicago	5.75 to 6.00
Cleve., No. 1	7.50 to 8.00
Cleve., No. 2	6.50 to 7.00
Det., No. 1 deal.	5.50 to 6.00
Det., No. 2 deal.	3.75 to 4.25
E. Pa. del. mill	7.00 to 7.50
E. Pa., No. 2 del.	5.50 to 6.00
N. Y. deal. R. R.	4.50 to 5.00
N. Y. deal, No. 2	2.50 to 3.50
N. Y. deal. yd.	2.50 to 3.00
Pitts. No. 1	9.00 to 9.50
St. L. No. 1 sel.	5.50 to 6.00
Federal, Ill.	5.00 to 5.50
Granite City, Ill.	4.50 to 5.00
Valleys, No. 1	10.00 to 10.50

COMPRESSED SHEETS

Buffalo, dealers	5.00 to 5.50
Chi. (Factory)	4.25 to 4.75
Cleveland	7.00 to 7.50
Detroit, dealers	5.00 to 5.50
E. Pa. new mat.	5.00 to 5.50
Pittsburgh	9.00 to 9.50
Valleys	9.00 to 9.50

BUNDLED SHEETS

Buffalo	4.00 to 4.25
Cinci., del.	4.25 to 4.75
Cleveland	5.00 to 5.50
Eastern, Pa.	5.00
Pittsburgh	8.00 to 8.50
St. Louis	1.50 to 2.00

SHEET CLIPPINGS LOOSE

Chicago	2.00 to 2.50
Cincinnati	2.00 to 2.50
Detroit, dealers	2.00 to 2.50
St. Louis	1.50 to 2.00

STEEL RAILS SHORT

Birmingham	7.50 to 8.50
Boston, dealers	4.00 to 4.50
Buffalo	8.75 to 9.25
Chicago (3 ft.)	8.00 to 8.50
Chicago (2 ft.)	8.50 to 9.00
Cinci., del.	8.50 to 9.00
Detroit, deal.	7.50 to 8.00
Pitts. (open-hearth, 3 ft. and less)	10.00 to 10.50
St. Louis	7.50 to 8.00

STOVE PLATE

Birmingham	5.50 to 6.00
Boston, dealers	2.50 to 3.00
Buffalo	7.00 to 7.50
Chicago, net	5.75 to 6.25
Cinci., deal. net	3.50 to 4.00
Det., net deal.	3.00 to 3.50
Eastern Pa.	6.50
N. Y., deal. mill	2.50 to 3.00
St. Louis	5.50 to 6.00

COUPLERS, SPRINGS

Buffalo	9.00 to 9.50
Chicago	6.50 to 7.00
Eastern Pa.	7.50 to 8.00
Pittsburgh	9.00 to 9.50
St. Louis	6.00 to 6.50

ANGLE BARS—STEEL

Chicago	7.00 to 7.50
St. Louis	6.00 to 6.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	9.00 to 9.50
Cleveland bil. and bloom crops	10.00 to 11.00
Eastern Pa.	9.00 to 9.50
Pittsburgh billet bloom crops	10.50 to 11.00
Pitts., sheet bar crops	10.00 to 10.50

FROGS, SWITCHES

Chicago	6.00 to 6.50
St. Louis	6.00 to 6.50

SHOVELING STEEL

Chicago	5.75 to 6.00
Cleveland	6.25 to 6.50
St. Louis	4.50 to 5.00

RAILROAD WROUGHT

Birmingham	5.00 to 5.50
Boston, dealers	1.00 to 1.50
Buffalo, No. 1	4.25 to 4.75
Buffalo, No. 2	6.50 to 7.00
Cinci., No. 2	5.00 to 5.50
Chi., No. 1, net	5.00 to 5.50
Chicago, No. 2	5.75 to 6.00
Eastern Pa.	7.00 to 7.50
N. Y., No. 1, deal.	2.50 to 3.00
Pitts., No. 2	9.00 to 9.50
St. Louis, No. 1	3.50 to 4.00
St. Louis, No. 2	4.50 to 5.00

SPECIFICATION PIPE

Boston	3.00 to 4.00
Eastern Pa.	7.00 to 7.50
N. Y., deal	2.00 to 2.25

BUSHELING

Buffalo, No. 1	5.00 to 5.50
Chicago, No. 1	4.50 to 5.00
Cinn., No. 1 dl.	4.00 to 4.50
Cinn., No. 2	2.50 to 3.00
Cleve., No. 2	3.00 to 3.50
Det., No. 1 new deal.	4.50 to 5.00
St. L., No. 1	3.00 to 3.50
Val. new No. 1	8.50 to 9.00

MACHINE TURNINGS

Birmingham	3.00 to 3.50
Boston, dealers	0.50 to 1.00
Buffalo	3.00 to 3.50
Chicago	2.50 to 3.00
Cin., deal.	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit	2.25 to 2.75
Eastern Pa.	3.50 to 4.00
N. Y., deal	1.35 to 1.50
Pittsburgh	5.75 to 6.25
St. Louis	1.50 to 2.00
Valleys	7.00 to 7.50

BORINGS AND TURNINGS

For Blast Furnace Use

Boston, dealers	.60 to .75
Buffalo	3.00 to 3.50
Cinn., deal.	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit, deal.	2.50 to 3.00
Eastern Pa.	3.00 to 3.50
N. Y., deal	1.35 to 1.50
Pittsburgh	5.75 to 6.25

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	3.00 to 3.50
Boston, chem.	5.00 to 5.50
Boston, dealers	1.00 to 1.25
Buffalo	3.25 to 3.50
Chicago	3.50 to 4.00
Cinn., deal.	3.00 to 3.50
Cleveland	4.50 to 5.00
Detroit, deal.	2.50 to 3.00
Eastern Pa.	3.00 to 3.50
E. Pa., chem.	8.00 to 10.50
N. Y., deal.	1.00 to 1.50
Pittsburgh	5.75 to 6.25
St. Louis	2.75 to 3.25

PIPE AND FLUES

Cinn., deal.	3.25 to 3.50

RAILROAD GRATE BARS

Buffalo	4.00 to 4.50
Chicago, net	5.00 to 5.50
Cincinnati	4.00 to 4.50
Eastern Pa.	5.50 to 6.00
N. Y., deal.	3.50 to 4.00
St. Louis	4.50 to 5.00

FORGE FLASHINGS

Boston, dealers	2.00 to 2.50
Buffalo	4.00 to 4.50
Cleve. ov. 10 in.	6.50 to 7.00
Detroit	4.00 to 4.50

FORGE SCAP

Boston, dealers	1.75 to 2.00
Chicago	7.00 to 7.50
Eastern Pa., del.	5.00 to 5.50

ARCH BARS, TRANSOMS

Chicago, net	5.00 to 5.50
St. Louis	5.00 to 5.50

AXLE TURNINGS

Boston, deal.	6.00 to 6.50
Buffalo	6.50 to 7.00
Chi., elec. fce.	5.00 to 5.50
Cleveland	5.50 to 6.00
Eastern Pa., del.	5.50 to 6.00
Pittsburgh, O. H.	8.00 to 8.50
St. Louis	3.50 to 4.00

STEEL CAR AXLES

Birmingham	8.50 to 9.00
Boston, ship. pt.	6.00 to 6.50
Buffalo	10.00 to 10.50
Chicago, net	7.50 to 8.00
Eastern Pa.	14.50
St. Louis	8.25 to 8.75

SHAFTING

Boston, ship. pt.	6.50 to 7.00
N. Y., deal.	6.50 to 7.00
St. Louis	7.50 to 8.00
E. Penna.	10.50 to 12.00

CAR WHEELS

Birming., iron	5.50 to 6.00
Boston, iron deal.	3.50 to 4.00
Buffalo, iron	7.00 to 8.00
Buffalo, steel	8.00 to 8.50
Chicago, iron	7.00 to 7.50
Chi., rolled steel	6.50 to 7.00
Cincinnati iron	6.00 to 6.50
E. Pa. steel	7.50 to 8.00
E. Pa. iron	8.00 to 8.50
Pitts., iron	9.00 to 9.50
Pitts., steel	9.00 to 10.00
St. Louis, iron	5.00 to 5.50
St. Louis, steel	5.00 to 5.50

NO. 1 CAST SCRAP

Birmingham	6.00 to 7.00
Buffalo (Mach.)	9.00 to 9.25
Buffalo, cupola	9.50 to 10.00
Boston, textile	7.00 to 7.50
Chi., mach. net	6.50 to 7.00
Chi., railroad, net	6.00 to 6.50
Chicago, agri., net	5.00 to 5.50
Cinn., mach. cup.	7.00 to 7.50
Cleve. cupola	7.00 to 8.00
Det., net deal.	6.50 to 7.00
E. Pa. cupola	9.00 to 9.50
N. Y., cup. deal.	5.50 to 6.50
N. Y., del. local foundries	8.00 to 8.50
Pitts., cupola	9.50 to 10.00
San Fran., del.	13.50 to 14.00
Seattle	4.50 to 6.50
St. L. No. 1 ma.	6.50 to 7.00
St. L., No. 1	6.00 to 6.50

HEAVY CAST

Boston, del.	4.00 to 4.25
Bost., mach. cast	7.00 to 7.50
Buffalo, break	6.00 to 6.50
Cleve., break	4.50 to 5.00
Detroit, auto, net deal.	7.00 to 7.50
Det., break., dl.	4.50 to 5.00
Eastern Pa.	8.50 to 9.00
N. Y. No. 1, dl.	5.00 to 5.50
N. Y. break, dl.	4.75 to 5.25
Pittsburgh	8.25 to 8.75

MALLEABLE

Boston Consum.	7.50 to 8.00
Buffalo	7.50 to 8.00
Chicago, agri.	5.00 to 5.50
Chicago, R. R.	6.50 to 7.00
Cinci., R. R., del.	7.50 to 8.00
Cinci., agri. del.	7.00 to 7.50
Cleveland, rail	7.50 to 8.00
Det. auto deal.	5.00 to 5.50
St. Louis, rail	4.75 to 5.25

RAILS FOR ROLLING

5 feet and over

Birmingham	7.00 to 7.50
Boston, deal.	5.00 to 5.50
Buffalo	7.00 to 7.50
Chicago	7.00 to 7.50
Eastern Pa.	9.50
New York dealer	4.25 to 4.75
St. Louis	7.00 to 7.50

LOCOMOTIVE TIRES

Chicago, cut	7.00 to 7.50
St. L., No. 1	4.50 to 5.00

LOW PHOS. PUNCHINGS

Chicago	8.00 to 8.50
Buffalo	9.00 to 9.50
Eastern Pa.	9.50 to 10.00
Pittsburgh	10.50 to 11.00

are showing additional strength. New England foundries are taking slightly heavier shipments and about 2000 tons of cast have been sold for water shipment. No. 1 steel continues $5, delivered Worcester, and slightly under to the Rhole Island consumer, due to freight rates. Present delivered prices for No. 1 steel for outside shipments are still too low to attract much New England business.

New York—Scrap is coming out slowly at present prices, which are mostly firm. Consumer buying is not heavy. No. 1 steel continues to bring $5, barge, but new business is light. Several eastern pipe foundries are inquiring for cast grades and $9 delivered is reported to have been paid for broken cast, delivered Phillipsburg, N. J. Cast grades show most strength. Cast iron car wheels are up 50 cents.

Philadelphia—A fair volume of small orders features the local scrap market. Purchase by a Trenton, N. J., consumer at $7, establishes the delivered range at $7 to $7.50, on No. 1 steel. Breakable cast is higher at $8.50 to $9, delivered; machine shop turnings at $3.50 to $4; and No. 1 railroad wrought at $7 to $7.50, although this latter revision is purely nominal.

Buffalo—Dealers report marked strength in all grades of scrap, with metal scarce and asking prices now 50 cents to $1.50 above the low points. One dealer has sold No. 1 machinery cast at $10 and now asks $10.50, while another fixes the minimum price of stove plate at $8.50, but without confirming sales.

Pittsburgh—The scrap market awaits a significant change in steel ingot operating rate. Although No. 1 heavy melting steel has been covered at $9.50 on a recent mill order, there have been no transactions above this figure. It is believed that the Pennsylvania railroad list which closed Sept. 7 is bringing between $9.25 and $9.50, probably nearer the latter. The Baltimore & Ohio closes Sept. 12 on 1000 tons of No. 1 heavy melting steel, 500 tons of long steel rails and 300 tons of uncut structural scrap.

Cleveland—A steelworks purchase of about 3000 tons of heavy melting steel at $6.75 for No. 1 grade, about 2000 tons of compressed sheets and about 5000 tons of turnings at about $4.90 has given the market added strength and quotations have been advanced 50 cents to $1.50 on a number of grades. Heavy melting steel sold by the Nickel Plate road for Youngstown, O., delivery is said to have brought $9.95, delivered.

Detroit—Increased inquiry for steel and iron scrap, in the absence of supply, has strengthened the market and advances of 50 cents per ton have been made on a number of grades. Supplies probably will not be available until early in October, when automotive production is likely to increase. This adds to the strength of the situation.

Cincinnati—Dealer quotations on iron and steel scrap were advanced during the past week 25 to 50 cents, with supplies unavailable in quantity even at the new prices.

St. Louis—Iron and steel scrap prices remain quotably unchanged but further strengthening in undertone is noted and purchasing in volume is confidently looked for. Sales are chiefly of small lots. Shipments have improved moderately and several plants have released tonnages on contracts.

Birmingham, Ala.—Little heavy melting steel is moving. A purchaser of this grade still insists on a lower price than that quoted.

Toronto, Ont.—Canadian iron and steel scrap markets show indications of improvement before the end of the year but current demand is specialized. Steel grades continue dull with spasmodic movement of small lots. No. 1 machinery cast has a steady call and is scarce; stove plate and malleable are spotty and most other lines listless. Dealers are carrying heavy stocks and are not anxious to add to holdings.

Equipment

Inquiries Continue to Improve; Repair Parts in Demand

New York—Inquiry from industrial sources has improved slightly, supported by a few orders, but there has been no general gain in demand for machinery and equipment. Demand for machine parts is more active. The navy is closing Sept. 20 on a punch and shear for Brooklyn and a planer for Philadelphia, but the bulk of such inquiry is for the West Coast.

Worcester, Mass.—A few New England shops are operating at fair schedules on Russian business and government orders, but outside of a better demand for textile machinery, mostly parts, machine tool activity is light. Grinding equipment plants are doing better. The navy is taking bids on a boring machine and universal grinder for the Portsmouth, N. H., ships.

Pittsburgh—The release on many steel mill equipment orders continues to be awaited. The past week brought a shade more volume of new inquiry but very little new in domestic business additional to what has been on the boards of steel mill equipment makers for some time past. According to one report there may be some prospective work developed in a rehabilitation program plant for the Broken Hill Steel Co., Australia. Crane interests are already figuring this work. One interest reports a marked scarcity of available rolls in the country's steelworks. Another equipment interest is hopeful of some fresh Russian orders following the Amtorg Trading Corp.'s recent machinery order in this country.

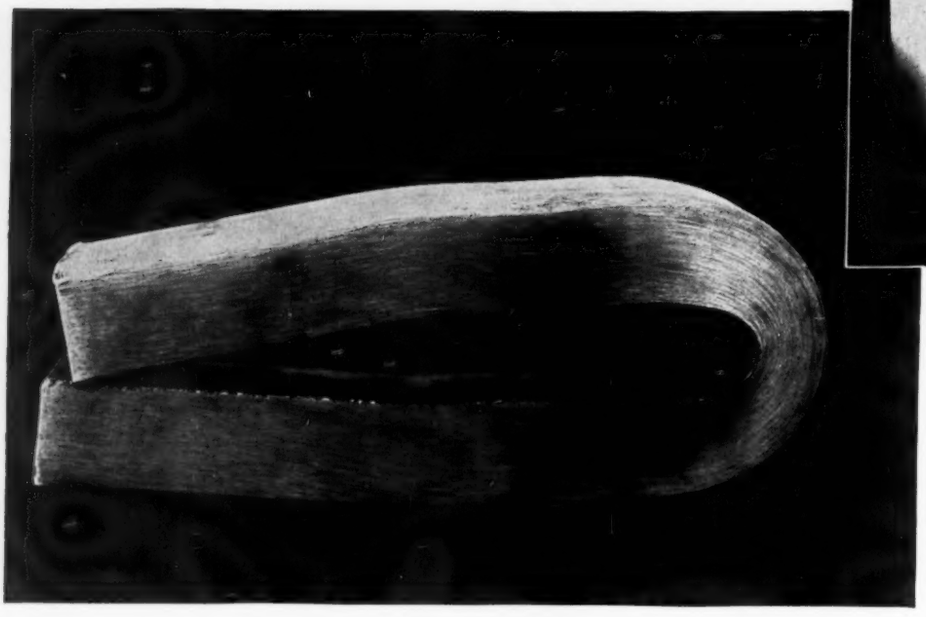
Cleveland—Other than a mild pickup in volume of inquiries there is little in the machinery and equipment lines to substantiate improved business in this field. Buying by automotive interests is light despite rumors of impending model changes, most of which probably can be handled by existing equipment, with minor changes in setup.

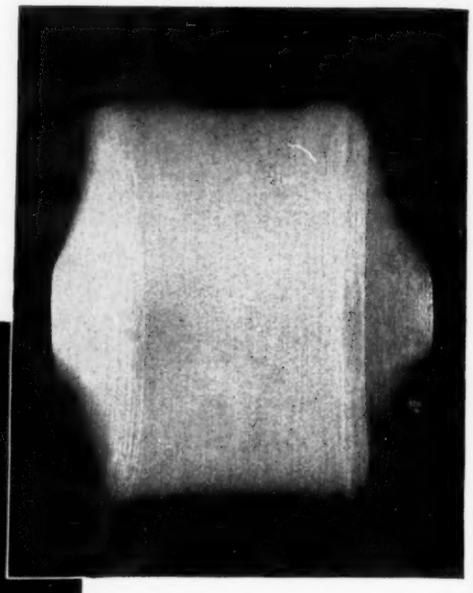
Chicago—Manufacturers and sellers of various types of plant machinery and equipment report a definite improvement in inquiry over the past several weeks, but note only a slight change in the volume of orders. Sellers look for some improvement in sales upon a more substantial increase in industrial operations, but anticipate only a moderate upturn in some lines over the balance of the year. The latter situation applies particularly to the commoner types of machine tools. Orders for repair parts of equipment are heavier in some instances. The crane market which has been extremely dull for a number of months still is slow from the standpoint of orders, but has developed more inquiries.

San Francisco—For navy shops at Mountainview, Calif., several machinery and equipment lists are out. Bids close Sept. 20 on the following: Bench precision lathe, two metal sawing machines, sheet metal cutter, electric-driven air compressor, eyelet stitching machine, universal tool grinder, surface grinder, metalworking shaper and two testing machines.

A list closing Sept. 27 includes one drill press, two sensitive drills, bandsaw, upright drill head machine, drill grinder, radial drill, punch and shear. Tools required in the opening of Sept. 30 include bending brake, squaring shear and two slip roll forming machines.

Here is an Alloy Steel you can sell **AS-ROLLED–** CROMANSIL





End View of Cold-Bent Plate

Note high ductility with complete freedom from cracking in this as-rolled Cromansil plate.

Cold Bend of Cromansil Plate

This one-inch boiler-plate grade of Cromansil steel in as-rolled condition was cold-bent flat on itself with 80 per cent elongation on the outside of the bend and with no fracture.

■ As-rolled or normalized Cromansil (a chromium-manganese-silicon alloy) can be cold-bent more than 180 deg. around a pin whose diameter is 1-1/4 times plate thickness. These are its physicals:

Carbon	0.20 per cent.
Plate thickness	3/4 in.
Proportional Limit (psi)	47,500 lb. per sq. in.
Yield Point (psi)	61,800 lb. per sq. in.
Ultimate Strength (psi)	95,000 lb. per sq. in.
Elongation in 8 in.	22 per cent.

In its as-rolled condition, Cromansil can be welded without air-hardening; and tests at Lehigh University have proved its excellence for riveting. ■ Any open-hearth operator can produce Cromansil steel without departing from usual metallurgical procedure. Its higher cost is justified by its higher physical properties which make it suitable for saving weight in seamless tubing, ship plate, castings, structural shapes, tanks, cars, pen-stocks, staybolts, pressure and process equipment, pipe, and machine parts. Our new booklet, "Cromansil Steels," gives the complete story. Send for it now.

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Pacific Coast

Golden Gate Bridge Construction Will Start Soon—Formal Award Of Steel To Be Affirmed Shortly —Seattle Sets Aside $2,000,000 For Water System — Winter Work Promises to be Heavy

San Francisco—(*By Air Mail*)—Activity in Pacific Coast markets during the past week was confined for the most part to relatively small tonnages. General business sentiment continues to improve, however, and prices appear firmer.

Work on the Golden Gate bridge over San Francisco bay will be started at once as the first block of bonds has just been sold. The formal award of 75,000 tons of structurals to McClintic-Marshall Corp. and 28,000 tons of cable to the American Cable Co., no doubt will be placed within the next week or ten days on the basis of prices submitted over a year ago.

Concrete bar awards were largest in over seven weeks at 1227 tons. The Blue Diamond Co. secured 190 tons for a building in Pasadena, Calif., for the California Institute of Technology. Unnamed interests took 648 tons for highway work in Los Angeles county and 112 tons for highway and bridge work in Arizona. Inquiries were confined to lots of less than 100 tons. Bids have been opened on 1237 tons for a breakwater at Santa Monica, Calif. Out-of-stock prices in the San Francisco and Los Angeles districts remain firm at 2.50c, base, on carload lots. Mild steel bars are firm at 2.10c, c.i.f.

Unnamed interests took 400 tons of plates for boiler equipment at Wilmington for the city of Los Angeles. Prices continue at 2.00c, c.i.f.

Judson-Pacific Co., has booked 944 tons of shapes for a medical school in San Francisco for the University of California and unnamed interests took 150 tons for a 25-ton locomotive crane for Mare Island and 124 tons for a bridge in Boundary county, Idaho. New bids will be opened Sept. 14 and 29, respectively, for postoffice in Reno, Nev., and in Billings, Mont., involving 577 tons and 250 tons. Bids are being taken on 350 tons for a race track at San Pablo, Calif. Standard shapes are firm at 2.10c, c.i.f.

Northwest Buying Light

Seattle—Pacific Northwest sentiment continues to improve, although projects of importance are slow in developing and present volume is small. Public construction this winter will be above normal, according to present indications. Seattle has allocated $2,000,000 for improvements and extensions of the water system. Oregon and Washington this week awarded road and highway jobs totaling $800,000. Some small bridges are involved.

Steel awards are small. Northwest Steel Rolling Mills, Seattle, booked 190 tons of reinforcing for an overhead crossing at Fiftieth and Aurora streets, Seattle. Barde & Co., Seattle, are furnishing 160 tons of sheet steel for Washington state automobile license plates.

Plans are out for a Northern Pacific terminal at Yakima, Wash., to include round house, steel water tank and other buildings.

Continued improvement is reported in the jobbing trade. Light gage sheets and plate for repair work are moving in greater volume. There is little mill buying. Seattle dealers have not followed Portland, which raised its quotations on steel bars, shapes, plates and bands 35 cents.

Steel in Europe

British and Continental Iron And Steel Demand Better

London—(*By Cable*)—A brighter tone has developed in the Northeast, with increased demand for pig iron. August shipments of steel from Middlesborough were the heaviest of the year. In the Midlands, demand is stagnant and conditions continue dull. Galvanized sheets are firmer on account of the higher price of spelter. Continental prices are rising although unaccompanied by British demand.

The Continent reports improved buying for export but demand from domestic sources is dull. German steel producers have re-entered the market as a result of the improvement in general export trade after having been unable to compete at the low prices.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Sept. 8

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports		Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	
PIG IRON		£ s d		£ s d
Foundry, 2.50-3.00 Silicon	$10.21	2 18 6	$ 8.75 to 9.23	1 16 0 to 1 18 0
Basic bessemer	9.42	2 14 0*	6.80 to 7.29	1 8 0 to 1 10 0
Hematite, Phos. .03-.05	10.47	3 0 0	.....	.....
SEMIFINISHED STEEL				
Billets	$17.01	4 17 6	$9.11	1 17 6
Wire rods, No. 5 gage	26.18	7 10 0	21.87	4 10 0
FINISHED STEEL				
Standard rails	$27.05	7 15 0	$26.73	5 10 0
Merchant bars	.96c	6 2 6	.48c	2 4 0
Structural shapes	1.15c	7 7 6	.44c to .45c	2 0 0 to 2 1 0
Plates, †¼ in. or 5 mm.	1.37c	8 15 0	.58c	2 12 6
Sheets, black, 24 gage or 0.5 mm.	1.25c	8 0 0	1.11c to 1.17c	5 1 0 to 5 6 0
Sheets, gal., 24 gage, corr.	1.44c	9 5 0	1.43c to 1.46c	6 10 0 to 6 12 6
Bands and strips	1.21c	7 15 0	.66c to .69c	3 0 0 to 3 2 6
Plain wire, base	1.48c	9 10 0	1.18c	5 7 6
Galvanized wire, base	1.79c	11 10 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	1.72c	11 0 0	1.21c	5 10 0
Tin plate, box 108 lbs.	$ 2.62	0 15 0	$3.20	0 13 2

British ferromanganese $68 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d		French Francs		Belgian Francs		Reich Marks	
Fdy. pig iron, Si. 2.5	$10.21	2 18 6	$ 8.04	205(2)	$ 8.45	305	$16.42	69
Basic bessemer pig iron	9.42	2 14 0*	6.86	175(1)	7.62	275	17.97	75.50
Furnace coke	2.09	0 12 0	4.86	124	3.05	110	4.57	19.20
Billets	17.45	5 0 0	14.50	370	9.83	355	22.97	96.50
Standard rails	1.29c	8 5 0	1.25c	697	1.50c	1.150	1.37c	127
Merchant bars	1.03c	6 12 6	.95c	530	.55c	420	1.19c	110
Structural shapes	1.37c	8 15 0	.99c	550	.53c	410	1.16c	107.50
Plates, †¼-in. or 5 mm.	1.40c	9 0 0	1.17c	650	.66c	510	1.37c	127
Sheets, black	1.29c	8 5 0§	1.44c	800‡	.85c	650‡	1.56c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm	1.50c	9 12 6	2.83c	1.570	1.76c	1.350	4.00c	370
Plain wire	1.48c	9 10 0	2.03c	1.130	1.95c	1.500	1.92c	178
Bands and strips	1.48c	9 10 0	1.04c	580	.79c	610	1.37c	127

*Basic. †British ship-plates, Continental, bridge plates. §24 ga. ‡1 to 3 mm. basis price.
British quotations are for basic open-hearth steel. Continental usually for basic-bessemer steel.

Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 6.25c, Conn., for copper

SHEETS	
Yellow brass (high)	12.50
Copper, hot rolled	15.37½
Lead sheets, cut, to jobbers	7.00
Zinc sheets (100-lb. base)	9.00
TUBES AND PIPES	
Seamless yellow brass (high)	15.25
Seamless copper	14.37½
RODS	
Yellow brass (high, full turning)	10.25
Naval brass	11.37½
ANODES	
Copper, untrimmed	12.25
WIRE	
Yellow brass (high)	12.50

Old Metals

Dealers' buying prices, cents lb.

No. 1 Composition Red Brass	
New York	2.75 to 3.00
Chicago	3.00 to 3.25
Cleveland	3.00 to 3.50
St. Louis	2.50
HEAVY YELLOW BRASS	
New York	1.87½ to 2.00
HEAVY COPPER AND WIRE	
New York	3.75 to 4.00
Chicago, No. 1	3.75 to 4.00
Cleveland	3.50 to 4.00
St. Louis	2.75
COMPOSITION BRASS BORINGS	
New York	2.50 to 2.75
YELLOW BRASS TUBING	
Cleveland	2.00 to 2.50
LIGHT COPPER	
New York	3.00 to 3.25
Chicago	3.00 to 3.12½
Cleveland	3.00 to 3.50
St. Louis	2.50
LIGHT BRASS	
Chicago	1.50 to 1.75
Cleveland	1.50 to 2.00
St. Louis	1.50
LEAD	
New York	2.65 to 2.87½
St. Louis	2.25 to 2.50
ZINC	
New York	1.12½ to 1.37½
Cleveland	1.00 to 1.25
St. Louis	1.25
ALUMINUM	
Clippings, new, soft, Cleve.	8.50 to 9.50
Clippings, hard, Cleveland	6.00 to 6.50
Borings, Cleveland	2.75 to 3.25
Mixed cast, Cleveland	3.75 to 4.25
Mixed cast, St. Louis	2.50 to 3.00

Secondary Metals

Remelt aluminum No. 12	7.00 to 8.00
Brass ingots, 85-5-5-5	6.25

Metals

Coper and Zinc Prices Push To Higher Levels—Lead Still Firm —Tin Eases Somewhat

New York—A generally advancing tendency continued in the metals during the past week. Copper and zinc again pushed upward, while most other metals held firmly to recently higher levels. Tin reached new high during the period but eased somewhat from this level late in the week.

Copper—The chief source of strength in the domestic market, aside from the improved business and financial outlook, has been the firmer market abroad. Domestic sellers late in the week were unwilling to sell electrolytic metal at under 6.25c, Connecticut. This price represented a rise of ½-cent over the level obtaining at the end of August. Copper in the foreign market sold for 6.35c, c.i.f. European ports. The advance here was accompanied by a ½-cent rise on brass ingot and copper and brass products. Scrap also moved upward. Actual movement of copper into consuming channels so far has increased only slowly but shipments are expected to gain in the near future inasmuch as consumer supplies in many quarters are admitted to be low.

Zinc—A further advance in prices was given support by the publication of August statistics which showed a cut of 4704 tons in stocks. This largely offset increases earlier in the year. Consumer demand generally was light but sellers were inclined to move prices more closely to profitable levels.

Lead—Buying was somewhat under the heavy volume of recent weeks but producers have been satisfied to await further developments. No further rise was recorded from the recent series of advances. August sales were the heaviest since the first of the year. September needs are largely covered but much remains to be purchased in October.

Tin—Straits metal advanced to 25.70c Wednesday but declined somewhat from this level later in the week due largely to lower prices in the London market. Buying has been light since Labor Day.

Sulphate Prices Firmer; Distillates Easier

New York—Naphthalene contract prices for next season are unsettled. Consumers are expected to cover in about one month. Meanwhile, volume is light in small spot lots, at unchanged quotations. Distillates are slightly easier due to light buying and a better supply. Sulphate of ammonia prices are firmer, one distributor quoting $20.50 a ton, f.o.b. port, in bulk for inland shipment.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	Spot
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26

Per Pound at Producers' Plants in 250-Pound Drums

Phenol	0.153 to 0.173

Per Pound at Producers' Plants

Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75

Per 100 Pounds Atlantic Seaboard

Sulphate of ammonia	$0.85 to $0.90

Quicksilver Steadier

New York—Quicksilver prices are slightly firmer, with a moderate increase in buying interest. Small lots generally are quoted $47 to $48, a virgin flask of 76 pounds, for spot delivery. Some shading has been reported, but on the other hand prices have ranged up to $49 on small lots in a few directions.

Nonferrous Metal Prices of the Week, Cents a Pound

	Copper Electro delivered	Copper Lake delivered	Copper Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
Sept. 3	6.00	6.12½	5.75	25.25	25.62½	3.60	3.45	3.25	22.90	5.50	35.00
Sept. 5	Holiday										
Sept. 6	6.00	6.12½	5.75	25.45	25.82½	3.60	3.45	3.37½	22.90	5.50	35.00
Sept. 7	6.25	6.37½	6.00	25.70	26.07½	3.60	3.45	3.40	22.90	5.50	35.00
Sept. 8	6.25	6.37½	6.00	25.55	25.92½	3.60	3.45	3.45	22.90	5.50	35.00
Sept. 9	6.25	6.37½	6.00	25.25	25.50	3.60	3.45	3.47½	22.90	5.50	35.00

New Trade Publications

STEEL SECTIONS—Truscon Steel Co., Youngstown, O., has issued a handbook of rolled and formed sections, for manufacturers and the architectural and building trades. It contains sections of the various forms and dimension tables and other data.

TRANSFORMERS—An additional sheet for its bulletin 172 has been issued by Wagner Electric Corp., St. Louis, describing its AC and AA units of air-cooled transformers. The units are made in one to 50 kilovolt-amperes voltages 100 to 600. Application of these transformers is discussed.

MATERIAL CRUSHERS—Patterson Foundry & Machine Co., East Liverpool, O., has issued a bulletin on its gyro-centric crusher for crushing various materials used in industry. Illustrations show details of construction and operation. Specifications of standard sizes are also given.

CONDUIT FITTINGS — Appleton Electric Co., Chicago, completes catalog presentation of its line of electric accessories by issuing bulletin No. 1001, covering outlet and switch boxes and conduit fittings. This supplements its catalog by covering these devices, not included in the main publication.

CONDENSING AND COOLING SECTIONS—National Radiator Corp., Johnstown, Pa., has prepared for engineers a report by its research department on its condensing and cooling sections for various industrial uses. It is illustrated. Results of comparative tests are given.

BLOOMING MILLS—Bulletin A-701 by the United Engineering & Foundry Co., Pittsburgh, covers its blooming mill equipment, designed for rapid roughing down of large masses of metal preliminary to finishing to smaller forms. It is heavily illustrated from actual installations.

ELECTRODES—Metal & Thermit Corp., 120 Broadway, New York, suggests numerous applications of its inorganic flux coated welding electrodes in a booklet just prepared for distribution. It describes welding of various forms of steel and iron and methods of building up and repairing castings.

BLOWERS — Roots-Connersville-Wilbraham, Connersville, Ind., has issued four bulletins, as follows: No. 21-B20 covers blower application to garment presses to remove surplus steam; No. 21-B21 blowers for cleaning barrels, drums and tanks; No. 21-B22 covers vacuum pumps for priming centrifugal pumps; No. 21-B23 covers blower application to specialized service.

INDUSTRIAL RUBBER—A catalog has been prepared by the B. F. Goodrich Rubber Co., Akron, O., containing new information and data. It is designed as a guide to the selection of belting, hose and other rubber products used in industry. Data include a table on rubber transmission belting, giving horsepower capacities, minimum pulley diameters, leather belt equivalents. Other valuable data are presented.

EMPIRE STEEL SHEETS

ELECTRICAL
All Grades
•
AUTO BODY
•
COLD ROLLED
•
HOT ROLLED
PICKLED
•
HOT ROLLED
ANNEALED
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TIN MILL BLACK
All Grades
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WABIK METAL
VITREOUS
ENAMELING
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Scientific supervision and distinctive methods in the production of Empire Steel Sheets, assure consistent uniformity and constant adherence to your most exacting requirements.

EMPIRE STEEL CORPORATION
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Sales Offices:

New York, Dayton, Cleveland, Indianapolis
Chicago, Detroit, St. Louis

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New York

BROOKLYN—Amboy Steel & Pipe Corp. has been incorporated with $10,000 capital by S. S. Nash, 132 Nassau street, New York.

BROOKLYN—Triborough Sheet Metal & Copper Works has been incorporated with $2500 capital to manufacture sheet metal products, by C. Rothaus, 130 Bristol street, Brooklyn.

FULTON—Fulton Iron & Paper Co. has been incorporated with 100 shares no par value to conduct a scrap business, by F. S. Spangle, Fulton.

NEW YORK—Otis Elevator Co. has been given $600,000 contract for 14 new elevators for the Henry W. Oliver building, Pittsburgh, and a $630,000 contract for elevators in the department of ustice and library of congress buildings at Washington.

NEW YORK—Remington Rand Inc. has instructed purchasing department to buy imediately $4,500,000 worth of materials and supplies for 1932 use and wherever possible at present prices to cover requirements for all of 1933, on basis of 25 per cent increase in production volume over 1932.

ROCHESTER—Sterling Range Corp. has been incorporated with $20,000 capital to manufacture stoves, by G. Sanderson, Rochester.

SCHENECTADY — General Electric Co. has increased production at Pittsfield, Mass., on boiler units for oil-burning furnaces. All welders there and at Schenectady have been recalled to duty. Oil furnace and humifilter orders promise steady work for air conditioning department.

New Jersey

BELLEVILLE—A bond issue for $40,000 for waterworks improvements has been approved by the city council.

ELIZABETH — Road Contractor Equipment Co. has been incorporated with 100 shares no par value to build road-building machinery, by Aaron Kaufman, Elizabeth.

ELIZABETH—Elizabeth Motor Truck Body Works Inc. has been incorporated with $25,000 capital to manufacture auto and truck bodies and operate a blacksmithing shop, by Hilda B. Hochberg, Elizabeth.

IRVINGTON—Electrigear Corp., Irvington, is building a 1-story shop to cost about $30,000.

KENVIL, N. J.—Hercules Powder Co., East Wilmington, Del., will install at its explosive works, here, a high-pressure steam turbine unit, two 500-horsepower high-pressure boilers, switching and distribution equipment, at cost of $125,000.

NEWARK—Aviation Piston Ring Co. Inc. has been incorporated with 1000 shares no par value to manufacture aviation equipment, by J. George Moss, Newark.

PATERSON—Tubular Finishing Machines Inc. has been incorporated with $70,000 preferred stock and 1000 shares no par value to manufacture tubular finishing machinery, by Corporation Trust Co.

Pennsylvania

ALTOONA—Penn Central Light & Power Co. has planned an expansion program to cost $175,000, including installation of transformers and auxiliaries, switching apparatus, transmission and distribution lines and auxiliary power station equipment.

PHILADELPHIA—Accurate Bending & Shearing Co. Inc. has been incorporated with $5000 capital to manufacture machinery and metal products, by Herman E. Wenograd, 1640 Nedro avenue, Philadelphia.

Ohio

AKRON—Palmer Match Co. is having plans made for a $300,000 steel and brick addition to its plant.

DEFIANCE—A petition has been filed with the city council for action leading to building of a municipal electric light plant. Jay R. Pollock is leading the movement.

Michigan

ALBION—Ralph Brooks and Albert Boulton have started operation of a foundry here for the manufacture of plow points, employing 12 men, expecting to increase this force. A plant 30 x 60 feet is being used.

BATTLE CREEK—Kellogg Co. is building an addition to cost $250,000 to its food-manufacturing plant. Other improvements will double this investment.

Indiana

CLOVERDALE—Construction of waterworks system to cost $30,000 has been approved by city council and financing is being undertaken.

COLUMBUS—Cummins Engine Co. is building an addition of 20,000 square feet and has bought equipment.

Illinois

CHICAGO—Acme Machine & Tool Co., 711 West Lake street, has been incorporated with $25,000 to manufacture machinery, by John E. Vannatta, 127 North Dearborn street.

CHICAGO—Chicago Electric Appliance Mfg. Co., 6617 Dorchester avenue, has been incorporated with 200 shares no par value to manufacture electrical equipment, by Harold A. Green, 100 West Monroe street, Chicago.

CHICAGO—Auto Home Stoker Corp., 1728 South Michigan avenue, has been incorporated with $20,000 preferred stock and 500 shares no par value to manufacture automatic stokers, by Finchel, Kahn, Heart & Epstein, 111 West Monroe street.

CHICAGO — Commercial Incinerator Corp., 2517 Archer avenue, has been incorporated with 300 shares no par value to manufacture electrical equipment, by McElroy & Pearson, 29 South LaSalle street.

CHICAGO—National Steel Container Corp., 3132 West Fifty-first street, has been incorporated with $10,000 preferred stock and 2000 shares no par value to manufacture metal and steel products, by Joseph A. Golde, 2009 Chicago Temple building, 11 West Washington street.

Southern States

MONTGOMERY, ALA.—Sealed bids in quadruplicate will be received by the United States engineer office here until Sept. 26 for labor and materials for a composite jetty about 1300 feet long for entrance to intracoastal waterway at Pensacola Bay, Fla.

WASHINGTON — Greyhound Lines Inc., is having plans made for a bus terminal 115 x 300 feet, to cost $135,000 with complete maintenance equipment for 122 busses. Company also has awarded contract for 1-story garage, 300 x 375 feet at St. Louis.

WASHINGTON—Bids will be opened by the bureau of supplies and accounts, navy department, as follows: Sept. 20, on schedule 8660 for one universal testing machine for Mountain View, Calif.; schedule 8685 one motor-driven metal-cutting band saw for Brooklyn, N. Y.; schedule 8687 one motor-driven universal tool grinder for Portsmouth, N. H.; schedule 8686 one motor-driven universal punch and shear machine for Brooklyn, N. Y. Sept. 27, schedule 8672 two motor-driven pedestal or floor type grinders; schedule 8674 one pattern-maker's lathe; schedule 8680 one motor-driven toolmakers precision lathe; schedule 8675 one motor-driven drill press; schedule 8697 two motor-driven sensitive drilling machines; schedule 8699 one motor-driven band saw; schedule 8703 one motor-driven stationary upright head drill; schedule 8707 one motor-driven drill grinding machine; schedule 8689 one motor-driven radial drilling machine; schedule 8675 one motor-driven punch and shear, all for Mountain View, Calif., delivery.

NEW ORLEANS, LA. — Jefferson Lake Oil Co. is preparing to start sulphur mining in Ibera parish and will build power plant and pipelines in connection. Arthur Barba Sr., is president.

Texas

RANGER — Burns Machinery Co., headed by R. B. Burns, has leased the

plant formerly occupied by the Bishop Machine Works, East Main street, and has equipped it for repair and overhaul work on gas engines and oilfield machinery.

Wisconsin

DENMARK—Denmark Motor Devices & Engineering Co. has been incorporated with $35,000 capital to manufacture dies and metal specialties, by James V. Dearmann, H. Jorgenson and M. Livermore.

HARTLAND—E. B. Parsons, consulting engineer, 419 North Washington street, Watertown, Wis., has been commissioned to plan a waterworks and sewerage system, to cost about $100,000.

LA CROSSE—R. A. Oil Burner Co. has been organized by J. H. Rothenberger and H. W. Delancey. Part of the former LaCrosse Tractor Co. plant is being equipped as a machine shop and assembly plant.

OSHKOSH—City council has authorized a bond issue of $250,000 for pumping station and other sewage plant improvements. Plans are by Pearse, Greeley & Hanson, 6 North Michigan avenue, Chicago. George Randall is city engineer.

RACINE—Jacobsen Mfg. Co., manufacturer of power lawnmowers, has taken over the manufacture of gasoline engines from the Johnson Outboard Motor Co., Waukegan, Ill. Equipment is being transferred from Waukegan to Racine. The entire customer list of users of Johnson motors has been taken over by the Jacobsen company, which will continue to supply their needs.

RIPON—W. E. Scheffer & Sons Co. will rebuild its foundry, practically destroyed by fire with loss of $35,000.

SHEBOYGAN—City water department will call for bids about Sept. 15 for a 4,000,000-gallon steel reservoir on steel or concrete base and 10,000 lineal feet of 30-inch connecting mains. Jerry Donahue, Sheboygan, is consulting engineer and A. H. Miller is waterworks superintendent.

North Dakota

FARGO—City has included $101,000 in its budget for a 500,000-gallon water storage tank and other improvements.

Kansas

WICHITA—C. F. Dickey, Wichita, is building an oil refinery at McPherson, Kans., to cost $50,000.

Montana

MISSOULA—Nolan Bros., Minneapolis, submitted the low bid at $61,853 for a bridge over the Missoula river, Yellowstone trail, for the United States bureau of public roads.

MISSOULA, MONT.—Bureau of roads is considering bids for a bridge over Missoula river, a 240-foot main cantilever span, two 80-foot steel truss anchor spans and two 49-foot reinforced concrete approaches.

Idaho

BOISE, IDAHO—State and county officials have reached an agreement making certain construction of a bridge across south end of Pend d'Oreille lake.

BOISE, IDAHO—J. H. Stemmer, director of highways, announces immediate construction of five bridges four with federal aid, at a total cost of $415,000, at Bonner's Ferry, Clearwater river, Payette river and over a canal at Hansen, Idaho.

WALLACE, IDAHO—A fund of $50,000 has been allotted for construction of a steel span over the Northern Pacific tracks near Mullan, Idaho.

Arizona

SANTA FE—McChesney-Rand Equipment Co. has been incorporated with $25,000 capital to deal in road equipment and machinery, by Glenn E. McChesney and associates.

Pacific Coast

PUGET SOUND, WASH.—Navy engineers are planning a 9-foot tunnel to connect two dry docks, estimated to cost about $100,000. Bids will be asked soon.

VANCOUVER, WASH.—Plans have been made by R. T. Perry, architect, for a brick and reinforced concrete armory to cost $300,000. Contract will be awarded soon.

YELM, WASH.—Bids will be called soon for a gymnasium and shop building for the Yelm high school, including a manual training and machine shop. Becket & Wurdeman, Edmond Meany hotel, Seattle, are architects.

Dominion of Canada

VANCOUVER, B. C.—Contract for an armory building to cost $130,000 has been awarded to Smith Bros. & Wilson Ltd., 1267 Richards street. Steel and concrete construction is specified.

PORT COLBORNE, ONT.—Canada Cement Co., idle through the summer, resumed full-time production Sept. 1.

WELLAND, ONT.—Dodge Mfg. Co. Ltd. has bought control of the Canadian Mead-Morrison Co. Ltd., with plants on the canal at Welland, occupying ten acres, including structural steel shop, dry docks, machine shop, foundry and pattern shop. The company manufactures coal bridges, coal-handling machinery, dredges, scows, hoists, derricks and material handling equipment. It is understood that after consolidation head offices will be at the present Dodge offices in Pelham avenue, Toronto.

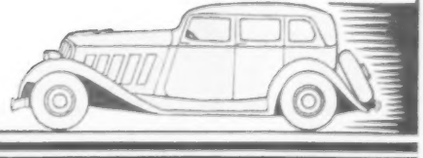
MONTREAL, QUE.—Ernest Bessette, 4426 St. Andre street, plans to build a foundry on Moreau street, to cost about $25,000.

STAMPINGS

These wheels are made from two formed cups electric welded together for use in connection with the new type low pressure tires.

Our plant is equipped to produce stampings of all descriptions. Consult us on your stamping problems.

FALLS STAMPING CO.
Cuyahoga Falls, Ohio



Accuracy-Economy

STEEL, WROUGHT AND CAST IRON PIPE, AND TUBING

Welded Iron, Steel Pipe

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to consumers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

Steel In.	Blk.	Gal.	Iron In.	Blk.	Gal.
⅛	51½	28½	½	25	7
¼ & ⅜	57	34	¾	30	13
½	62	49½	1—1¼	33	17
¾	65½	55	1½—2	37	20

LAP WELD

2	61	50½	2	25	11
2½ to 6	64½	54	2½—3½	30	15
8	62	51	4—6	32	19
10	60	49	7—8	31	18
12	59	48	9—12	28	18

BUTT WELD

Extra strong, plain ends

⅛	48	33	¼ & ⅜	+11 +46
¼ & ⅜	53½	38½	½	25 9
½	59	49½	¾	30 14
¾	63½	54	1—2	36 20

LAP WELD

Extra strong, plain ends

2	59	49½	2	31 15
2½ to 4	62½	53	2½—4	36 22
5 & 6	62	52½	4½—6	35 21
8	58	47	7—8	33 19
10	51½	40½	9—12	23 10
12	50½	39½		

STEEL LINE PIPE

2 to 3 butt	66½	2½ to 6 lap	63½
2 lap	60	8 lap	61
10 lap	59	12 lap	58

To large jobbers, the above discounts, less 5 per cent. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	b
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½ 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$32.00 to 33.00
Four-inch, Birmingham .... 36.00 to 37.00
Four-inch, Chicago ..... 43.40 to 44.40
Six to 24-inch, Chicago..... 40.40 to 41.40
Six-inch and over, N. Y... 32.00 to 34.50
Four-inch, New York ..... 34.50 to 36.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	2.95c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.65c
Los. Ang.	3.30c
New York‡(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.60c
Portland	3.35c
San Fran.	3.25c
Seattle	3.00c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.25c

IRON BARS

Baltimore	2.75c
Boston	3.25c
Buffalo	3.15c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.45c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.35c-3.00c
Boston	3.10c-3.25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los. Ang. cl.	2.10c
Los Ang., lcl	2.40c
New York	2.65c-3.10c
Phila.	2.26½c
Pittsburgh	2.60c
San Fran. cl.	2.50c
San Fran. lcl	2.80c
Seattle	3.00c
St Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los. Ang.	3.30c
New York(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.85c
Portland	3.35c
San Fran.	3.15c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

PLATES

Baltimore	2.75c
Boston	3.35c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.30c
New York(d)	3.30c
Philadelphia	2.45c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	3.35c
San Fran.	3.25c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.50c
Buffalo	3.45c
Chattanooga	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.35c
Los Ang.	3.60c
N. Y.	3.00c
Portland	4.00c
Phila.*† (e)	2.90c
Pitts.**	3.00c
San Fran.	3.50c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.45c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.20c
Buffalo	3.70c
Chattanooga	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.25c
Detroit	3.50c
Los Ang.	4.20c
New York	3.75c-4.00c
Phila.*†(e)	3.40c
Pitts.**	3.40c
Portland	4.50c
San Fran.	4.05c
Seattle	4.50c
St. Louis	3.80c
St. Paul	3.695c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	4.75c
Buffalo	4.05c
Chattanooga	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	3.75c
Detroit	3.75c
Houston	4.25c
Los. Ang.	4.50c
New York	4.00c-4.10c
Phila.*†(e)	3.75c
Pitts.**	3.90c
Portland	5.00c
San. Fran.	4.55c
Seattle	5.00c
St. Louis	4.35c
St. Paul	4.19c
Tulsa	5.10c

*BANDS

Baltimore	3.25c
Boston	3.75c
Buffalo	3.30c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	3.80c
New York(d)	3.30c
Philadelphia	2.75c
Pittsburgh	2.95c
Portland	3.85c
San Fran.	3.65c
Seattle	3.50c
St. Paul	3.20c
Tulsa	3.45c

*HOOPS

Baltimore	3.25c
Boston	4.90c
Buffalo	3.95c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.65c
Det. No. 14 & lighter	3.30c
New York	3.30c
Philadelphia	3.00c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	3.75c

*New extras apply.

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.60c
Buffalo	3.00c
Chattanooga*	3.68c
Chicago	3.00c
Cincinnati	3.32c
Cleveland	2.95c
Detroit	3.15c
Los Ang. (a)	4.25c
New York	3.39c
Philadelphia*	3.35c
Pittsburgh	2.95c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)	3.20c
St. Louis	3.36c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.25c
Chicago (soft) (b)	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
‡Domestic bars.
*Plus quan. extras.
**Less than 25 sheets.
*†50 or more bundles.